

p-PKC θ (A-11): sc-271922

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 I, 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 H_2O_2 . 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 θ can undergo autophosphorylation on Serine 676 (Ser 676) in the turn loop and Serine 695 (Ser 695) in the hydrophobic loop. Phosphorylation of Serine 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.

CHROMOSOMAL LOCATION

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

SOURCE

p-PKC θ (A-11) is a mouse monoclonal antibody specific for an epitope containing Thr 538 phosphorylated PKC θ of mouse origin.

PRODUCT

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

Blocking peptide available for competition studies, sc-271922 P, (100 μ g peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% stabilizer protein).

RESEARCH USE

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

APPLICATIONS

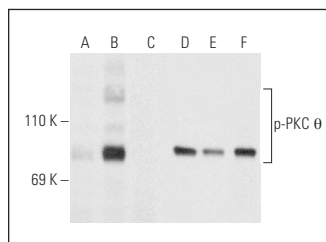
p-PKC θ (A-11) is recommended for detection of Thr 538 phosphorylated PKC θ of mouse, rat and human origin by Western Blotting (starting dilution 1:100, dilution range 1:100-1:1000), immunoprecipitation [1-2 μ g per 100-500 μ g of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500), 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).

Suitable for use as control antibody for PKC θ siRNA (h): sc-36252, PKC θ siRNA (m): sc-36247, PKC θ siRNA (r): sc-270095, PKC θ shRNA Plasmid (h): sc-36252-SH, PKC θ shRNA Plasmid (m): sc-36247-SH, PKC θ shRNA Plasmid (r): sc-270095-SH, PKC θ shRNA Lentiviral Particles (h): sc-36252-V, PKC θ shRNA (m) Lentiviral Particles: sc-36247-V and PKC θ shRNA (r) Lentiviral Particles: sc-270095-V.

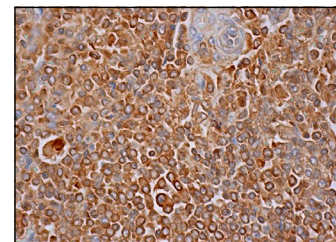
Molecular Weight of p-PKC θ : 82 kDa.

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

DATA



Western blot analysis of PKC θ phosphorylation in untreated (A,D), PMA treated (B,E) and PMA and lambda protein phosphatase treated (C,F) Jurkat whole cell lysates. Antibodies tested include p-PKC θ (A-11): sc-271922 (A,B,C) and PKC θ (1C2): sc-81534 (D,E,F).



p-PKC θ (A-11): sc-271922. Immunoperoxidase staining of formalin fixed, paraffin-embedded human spleen tissue showing cytoplasmic staining of cells in white pulp and red pulp.

SELECT PRODUCT CITATIONS

1. Astarci, E., et al. 2012. The NF κ B target genes ICAM-1 and VCAM-1 are differentially regulated during spontaneous differentiation of Caco-2 cells. *FEBS J.* 279: 2966-2986.
2. Macarie, R.D., et al. 2018. The expression of MMP-1 and MMP-9 is up-regulated by smooth muscle cells after their cross-talk with macrophages in high glucose conditions. *J. Cell. Mol. Med.* 22: 4366-4376.
3. Jama, A., et al. 2019. Lipin1 is required for skeletal muscle development by regulating MEF2c and MyoD expression. *J. Physiol.* 597: 889-901.
4. Liu, X., et al. 2019. Disassembly of the TRIM23-TBK1 complex by the Us11 protein of herpes simplex virus 1 impairs autophagy. *J. Virol.* 93: e00497-19.

STORAGE

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