

# p-PKC $\theta$ (Ser 695): sc-101780

## 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 ( $\alpha$ ,  $\beta$ I,  $\beta$ II and  $\gamma$ ) and novel (n) PKC isoforms ( $\delta$ ,  $\epsilon$ ,  $\zeta$ ,  $\eta$  and  $\theta$ ). 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  $\theta$  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 $\kappa$ 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  $\theta$ , predominantly expressed in skeletal muscle. *Mol. Cell. Biol.* 12: 3930-3938.
7. Konishi, H., et al. 1997. Activation of protein kinase C by tyrosine phosphorylation in response to  $H_2O_2$ . *Proc. Natl. Acad. Sci. USA* 94: 11233-11237.
8. Parekh, D., et al. 1999. Mammalian TOR controls one of two kinase pathways acting upon nPKC  $\delta$  and nPKC  $\epsilon$ . *J. Biol. Chem.* 274: 34758-34764.

## CHROMOSOMAL LOCATION

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

## SOURCE

p-PKC  $\theta$  (Ser 695) is a rabbit polyclonal antibody raised against a short amino acid sequence containing Ser 695 phosphorylated PKC  $\theta$  of human origin.

## RESEARCH USE

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

## PRODUCT

Each vial contains 100  $\mu$ g IgG in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

## APPLICATIONS

p-PKC  $\theta$  (Ser 695) is recommended for detection of Ser 695 phosphorylated PKC  $\theta$  of mouse, rat and human origin by immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500) and immunohistochemistry (including paraffin-embedded sections) (starting dilution 1:50, dilution range 1:50-1:500).

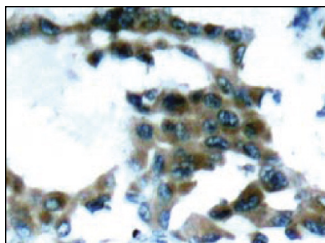
Suitable for use as control antibody for PKC  $\theta$  siRNA (h): sc-36252, PKC  $\theta$  siRNA (m): sc-36247, PKC  $\theta$  siRNA (r): sc-270095, PKC  $\theta$  shRNA Plasmid (h): sc-36252-SH, PKC  $\theta$  shRNA Plasmid (m): sc-36247-SH, PKC  $\theta$  shRNA Plasmid (r): sc-270095-SH, PKC  $\theta$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

Molecular Weight of p-PKC  $\theta$ : 82 kDa.

## RECOMMENDED SECONDARY REAGENTS

To ensure optimal results, the following support (secondary) reagents are recommended: 1) Immunofluorescence: use goat anti-rabbit IgG-FITC: sc-2012 (dilution range: 1:100-1:400) or goat anti-rabbit IgG-TR: sc-2780 (dilution range: 1:100-1:400) with UltraCruz<sup>™</sup> Mounting Medium: sc-24941. 2) Immunohistochemistry: use ImmunoCruz<sup>™</sup>: sc-2051 or ABC: sc-2018 rabbit IgG Staining Systems.

## DATA



p-PKC  $\theta$  (Ser 695): sc-101780. Immunoperoxidase staining of formalin-fixed, paraffin-embedded human lung carcinoma tissue showing cytoplasmic staining.

## SELECT PRODUCT CITATIONS

1. Pazos, Y., et al. 2007. Stimulation of extracellular signal-regulated kinases and proliferation in the human gastric cancer cells KATO-III by obestatin. *Growth Factors* 25: 373-381.

## STORAGE

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