

p-cPLA₂ (Ser 505): sc-34391

BACKGROUND

Phospholipase A₂s (PLA₂s) constitute a family of esterases that hydrolyze the sn-2 acyl ester bond in glycerophospholipid molecules. These enzymes are generally calcium-dependent and have been found both intra- and extracellularly. By hydrolyzing the sn-2 bond in glycerophospholipids, PLA₂s release fatty acids. One such fatty acid, arachidonic acid, generates the substrates for the initiation of the arachidonic acid cascade that produces various eicosanoids (i.e. prostaglandins, leukotrienes and thromboxanes), many of which are potent mediators of inflammation. PLA₂s include both the relatively low molecular weight type I and type II enzymes and the form known as cytoplasmic PLA₂ (cPLA₂). cPLA₂ is present in the cytosol of various cells and tissues including platelets, macrophages and monoblasts and preferentially hydrolyzes the sn-2 position of phospholipid molecules, releasing free arachidonate. Residue Ser 505 of cPLA₂ is a consensus site for phosphorylation by MAPK, but is also phosphorylated by PI 3-kinase via a pathway not involving MAPK. Dual phosphorylation of Ser 505 and Ser 727 by ERK 1/2 and/or p38 MAP kinase (mainly the 2α isoform) is required for activation of cPLA₂ and acts synergistically with the increase in intracellular Ca²⁺.

CHROMOSOMAL LOCATION

Genetic locus: PLA2G4A (human) mapping to 1q31.1; Pla2g4a (mouse) mapping to 1 G1.

SOURCE

p-cPLA₂ (Ser 505) is a rabbit polyclonal antibody raised against a short amino acid sequence containing Ser 505 phosphorylated cPLA₂ of human origin.

PRODUCT

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

Blocking peptide available for competition studies, sc-34391 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

APPLICATIONS

p-cPLA₂ (Ser 505) is recommended for detection of Ser 505 phosphorylated cPLA₂ of mouse, rat and human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg 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).

p-cPLA₂ (Ser 505)-R is also recommended for detection of correspondingly phosphorylated cPLA₂ in additional species, including equine.

Suitable for use as control antibody for cPLA₂ siRNA (h): sc-29280, cPLA₂ siRNA (m): sc-35098, cPLA₂ shRNA Plasmid (h): sc-29280-SH, cPLA₂ shRNA Plasmid (m): sc-35098-SH, cPLA₂ shRNA (h) Lentiviral Particles: sc-29280-V and cPLA₂ shRNA (m) Lentiviral Particles: sc-35098-V.

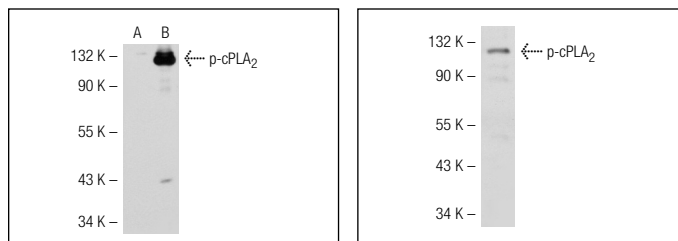
Molecular Weight of p-cPLA₂: 85-114 kDa.

Positive Controls: cPLA₂ (m): 293T Lysate: sc-119430 or NIH/3T3 whole cell lysate: sc-2210.

STORAGE

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

DATA



p-cPLA₂ (Ser 505): sc-34391. Western blot analysis of cPLA₂ phosphorylation in non-transfected: sc-117752 (A) and mouse cPLA₂ transfected: sc-119430 (B) 293T whole cell lysates.

p-cPLA₂ (Ser 505) sc-34391. Western blot analysis of cPLA₂ phosphorylation in NIH/3T3 whole cell lysate.

SELECT PRODUCT CITATIONS

- Chang, W.C., et al. 2006. Ca²⁺ influx through CRAC channels activates cytosolic phospholipase A₂, leukotriene C4 secretion, and expression of c-Fos through ERK-dependent and -independent pathways in mast cells. *FASEB J.* 20: 2381-2383.
- Ho, T.C., et al. 2009. Cytosolic phospholipase A₂-α is an early apoptotic activator in PEDF-induced endothelial cell apoptosis. *Am. J. Physiol., Cell Physiol.* 296: C273-C284.
- Leoncini, G., et al. 2009. In retinal vein occlusion platelet response to thrombin is increased. *Thromb. Res.* 124: 48-55.
- Moes, M., et al. 2010. Novel role of cPLA₂α in membrane and actin dynamics. *Cell. Mol. Life Sci.* 67: 1547-1557.
- Singh, J., et al. 2010. Food extracts consumed in Mediterranean countries and East Asia reduce protein concentrations of androgen receptor, phospho-protein kinase B, and phosphocytosolic phospholipase A₂α in human prostate cancer cells. *J. Nutr.* 140: 786-791.
- Moes, M.J., et al. 2011. Attachment of HeLa cells during early G₁ phase. *Histochem. Cell Biol.* 136: 399-411.
- Deng, Z.H., et al. 2012. Leptin relieves intestinal ischemia/reperfusion injury by promoting ERK1/2 phosphorylation and the NO signaling pathway. *J. Trauma Acute Care Surg.* 72: 143-149.
- Tajuddin, N.F., et al. 2013. Effect of repetitive daily ethanol intoxication on adult rat brain: significant changes in phospholipase A₂ enzyme levels in association with increased PARP-1 indicate neuroinflammatory pathway activation. *Alcohol* 47: 39-45.

RESEARCH USE

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