SANTA CRUZ BIOTECHNOLOGY, INC.

p-PKC ζ (H-2): sc-271962

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

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, βI, βII and γ) and novel (n) PKC isoforms (δ, ε, ζ, η and θ). Upon phosphorylation on Thr 507, PKC δ is activated, where it can inhibit the functionality of specific substrates, such as JAK2 and Stat3. PKC δ phosphorylates and associates with Stat3 on Ser 727 following induction by IL-6 to negatively regulate the DNA-binding and transcriptional activity of Stat3. Phosphorylation of PKC ζ is induced by PDK1.

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: PRKCZ (human) mapping to 1p36.33; Prkcz (mouse) mapping to 4 E2.

SOURCE

p-PKC ζ (H-2) is a mouse monoclonal antibody epitope corresponding to a short amino acid sequence containing Thr 410 phosphorylated PKC ζ of human origin.

PRODUCT

Each vial contains 200 µg IgG_1 kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

p-PKC ζ (H-2) is available conjugated to agarose (sc-271962 AC), 500 µg/ 0.25 ml agarose in 1 ml, for IP; to HRP (sc-271962 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-271962 PE), fluorescein (sc-271962 FITC), Alexa Fluor® 488 (sc-271962 AF488), Alexa Fluor® 546 (sc-271962 AF546), Alexa Fluor® 594 (sc-271962 AF594) or Alexa Fluor® 647 (sc-271962 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-271962 AF680) or Alexa Fluor® 790 (sc-271962 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

Blocking peptide available for competition studies, sc-271962 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% stabilizer protein).

STORAGE

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

APPLICATIONS

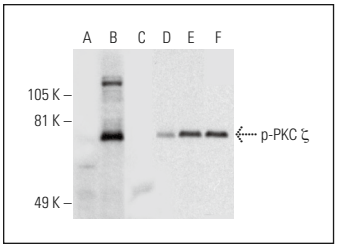
p-PKC ζ (H-2) is recommended for detection of Thr 410 phosphorylated PKC ζ of mouse, rat and human origin by Western Blotting (starting dilution 1:100, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500), 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 ζ siRNA (h): sc-29451, PKC ζ siRNA (m): sc-36254, PKC ζ shRNA Plasmid (h): sc-29451-SH, PKC ζ shRNA Plasmid (m): sc-36254-SH, PKC ζ shRNA (h) Lentiviral Particles: sc-29451-V and PKC ζ shRNA (m) Lentiviral Particles: sc-36254-V.

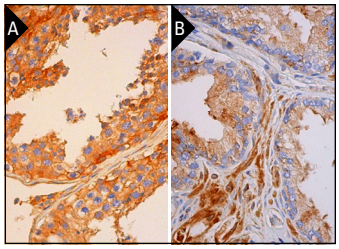
Molecular Weight of p-PKC ζ: 76 kDa.

Positive Controls: PKC ζ (h3): 293T Lysate: sc-170980.

DATA



Western blot analysis of PKC ζ phosphorylation in non-transfected: sc-117752 (**A**,**D**), untreated human PKC ζ transfected: sc-170980 (**B**,**E**) and lambda protein phosphatase (sc-200312A) treated human PKC ζ transfected: sc-170980 (**C**,**F**) 293T whole cell lysates. Antibodies tested include p-PKC ζ (H-2): sc-271962 (**A**,**B**,**C**) and PKC ζ (H-1): sc-17781 (**D**,**E**,**F**).



p-PKC ζ (H-2): sc-271962. Immunoperoxidase staining of formalin fixed, paraffin-embedded human testis tissue showing cytoplasmic and membrane staining of cells in seminiferous ducts and cytoplasmic staining of Leydig cells (**A**). Immunoperoxidase staining of formalin fixed, paraffin-embedded human prostate tissue showing cytoplasmic staining of glandular cells, interstitial cells and smooth muscle cells (**B**).

SELECT PRODUCT CITATIONS

1. Sakamori, R., et al. 2012. Cdc42 and Rab8a are critical for intestinal stem cell division, survival, and differentiation in mice. J. Clin. Invest. 122: 1052-1065.
2. Feng, Q., et al. 2017. Disruption of Rab8a and Rab11a causes formation of basolateral microvilli in neonatal enteropathy. J. Cell Sci. 130: 2491-2505.
3. Zhang, Z., et al. 2019. TLR4 counteracts BVRA signaling in human leukocytes via differential regulation of AMPK, mTORC1 and mTORC2. Sci. Rep. 9: 7020.
4. Filippone, M.G., et al. 2022. Aberrant phosphorylation inactivates Numb in breast cancer causing expansion of the stem cell pool. J. Cell Biol. 221: e202112001.
5. Crossay, E., et al. 2023. Daphnanes diterpenes from the latex of *Hura crepitans* L. and their PKCζ-dependent anti-proliferative activity on colorectal cancer cells. Bioorg. Med. Chem. 90: 117366.

RESEARCH USE

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