

# PP2C $\kappa$ (E-3): sc-514924

## BACKGROUND

PP2C $\kappa$  (protein phosphatase 2C isoform  $\kappa$ ), also known as PP2C-type mitochondrial phosphoprotein phosphatase and PP2C domain-containing protein phosphatase 1K, is a 372 amino acid mitochondrial matrix protein that regulates the opening of mitochondrial membrane permeability transition pores. PP2C $\kappa$  is essential for cell survival, cardiac function and embryonic development. Knockdown of PP2C $\kappa$  results in cell death due to loss of mitochondrial membrane potential. PP2C $\kappa$  specifically binds to the branched-chain- $\alpha$ -ketoacid dehydrogenase (BCKD) complex and induces dephosphorylation of Ser293, effectively leading to the inhibition of branched chain amino acid metabolism. Highest expression of PP2C $\kappa$  is found in brain, diaphragm and heart. There are three isoforms of PP2C $\kappa$  that are produced as a result of alternative splicing events.

## REFERENCES

1. Brautigan, D.L. 1997. Phosphatases as partners in signaling networks. *Adv. Second Messenger Phosphoprotein Res.* 31: 113-124.
2. Ruiz-Meana, M., et al. 2007. Opening of mitochondrial permeability transition pore induces hypercontracture in Ca<sup>2+</sup> overloaded cardiac myocytes. *Basic Res. Cardiol.* 102: 542-552.
3. Joshi, M., et al. 2007. Identification of a novel PP2C-type mitochondrial phosphatase. *Biochem. Biophys. Res. Commun.* 356: 38-44.
4. Javadov, S. and Karmazyn, M. 2007. Mitochondrial permeability transition pore opening as an endpoint to initiate cell death and as a putative target for cardioprotection. *Cell. Physiol. Biochem.* 20: 1-22.
5. Lu, G., et al. 2007. A novel mitochondrial matrix serine/threonine protein phosphatase regulates the mitochondria permeability transition pore and is essential for cellular survival and development. *Genes Dev.* 21: 784-796.

## CHROMOSOMAL LOCATION

Genetic locus: PPM1K (human) mapping to 4q22.1; Ppm1k (mouse) mapping to 6 B3.

## SOURCE

PP2C $\kappa$  (E-3) is a mouse monoclonal antibody raised against amino acids 213-280 mapping near the C-terminus of PP2C $\kappa$  of human origin.

## PRODUCT

Each vial contains 200  $\mu$ g IgG<sub>2a</sub> kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

PP2C $\kappa$  (E-3) is available conjugated to agarose (sc-514924 AC), 500  $\mu$ g/0.25 ml agarose in 1 ml, for IP; to HRP (sc-514924 HRP), 200  $\mu$ g/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-514924 PE), fluorescein (sc-514924 FITC), Alexa Fluor<sup>®</sup> 488 (sc-514924 AF488), Alexa Fluor<sup>®</sup> 546 (sc-514924 AF546), Alexa Fluor<sup>®</sup> 594 (sc-514924 AF594) or Alexa Fluor<sup>®</sup> 647 (sc-514924 AF647), 200  $\mu$ g/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor<sup>®</sup> 680 (sc-514924 AF680) or Alexa Fluor<sup>®</sup> 790 (sc-514924 AF790), 200  $\mu$ g/ml, for Near-Infrared (NIR) WB, IF and FCM.

Alexa Fluor<sup>®</sup> is a trademark of Molecular Probes, Inc., Oregon, USA

## APPLICATIONS

PP2C $\kappa$  (E-3) is recommended for detection of PP2C $\kappa$  of mouse, rat and human origin by Western Blotting (starting dilution 1:100, dilution range 1:100-1:1000), immunoprecipitation [1-2  $\mu$ g per 100-500  $\mu$ 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 PP2C $\kappa$  siRNA (h): sc-89095, PP2C $\kappa$  siRNA (m): sc-155944, PP2C $\kappa$  shRNA Plasmid (h): sc-89095-SH, PP2C $\kappa$  shRNA Plasmid (m): sc-155944-SH, PP2C $\kappa$  shRNA (h) Lentiviral Particles: sc-89095-V and PP2C $\kappa$  shRNA (m) Lentiviral Particles: sc-155944-V.

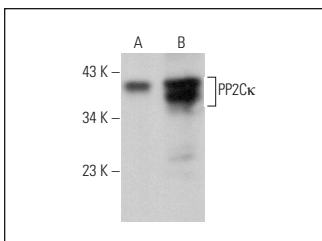
Molecular Weight of PP2C $\kappa$ : 41 kDa.

Positive Controls: human heart extract: sc-363763, K-562 whole cell lysate: sc-2203 or human liver extract: sc-363766.

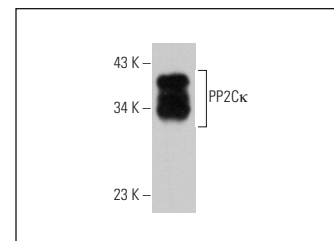
## RECOMMENDED SUPPORT REAGENTS

To ensure optimal results, the following support reagents are recommended: 1) Western Blotting: use m-IgG $\kappa$  BP-HRP: sc-516102 or m-IgG $\kappa$  BP-HRP (Cruz Marker): sc-516102-CM (dilution range: 1:1000-1:10000), Cruz Marker<sup>™</sup> Molecular Weight Standards: sc-2035, UltraCruz<sup>®</sup> Blocking Reagent: sc-516214 and Western Blotting Luminol Reagent: sc-2048. 2) Immunoprecipitation: use Protein A/G PLUS-Agarose: sc-2003 (0.5 ml agarose/2.0 ml). 3) Immunofluorescence: use m-IgG $\kappa$  BP-FITC: sc-516140 or m-IgG $\kappa$  BP-PE: sc-516141 (dilution range: 1:50-1:200) with UltraCruz<sup>®</sup> Mounting Medium: sc-24941 or UltraCruz<sup>®</sup> Hard-set Mounting Medium: sc-359850.

## DATA



PP2C $\kappa$  (E-3): sc-514924. Western blot analysis of PP2C $\kappa$  expression in K-562 whole cell lysate (A) and human liver tissue extract (B).



PP2C $\kappa$  (E-3): sc-514924. Western blot analysis of PP2C $\kappa$  expression in human heart tissue extract.

## 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.

## PROTOCOLS

See our web site at [www.scbt.com](http://www.scbt.com) for detailed protocols and support products.