

# PP2C $\kappa$ (N-14): sc-160683

## 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 PP2 $\kappa$  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.
6. Online Mendelian Inheritance in Man, OMIM™. 2007. Johns Hopkins University, Baltimore, MD. MIM Number: 611065. World Wide Web URL: <http://www.ncbi.nlm.nih.gov/omim>

## CHROMOSOMAL LOCATION

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

## SOURCE

PP2C $\kappa$  (N-14) is an affinity purified goat polyclonal antibody raised against a peptide mapping near the N-terminus of PP2C $\kappa$  of human origin.

## PRODUCT

Each vial contains 200  $\mu$ g IgG in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Blocking peptide available for competition studies, sc-160683 P, (100  $\mu$ g peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

## STORAGE

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

## APPLICATIONS

PP2C $\kappa$  (N-14) is recommended for detection of PP2C $\kappa$  of mouse, rat and human origin by Western Blotting (starting dilution 1:200, 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), 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).

PP2C $\kappa$  (N-14) is also recommended for detection of PP2C $\kappa$  in additional species, including equine, canine, bovine and avian.

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.

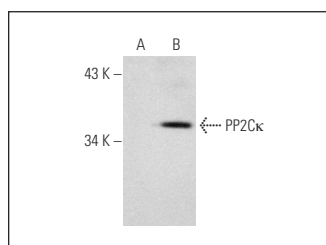
Molecular Weight of PP2C $\kappa$ : 41 kDa.

Positive Controls: PP2C $\kappa$  (h): 293T Lysate: sc-114960.

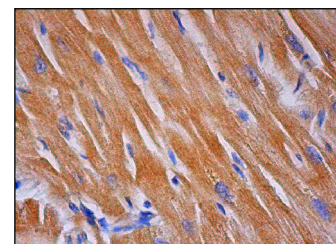
## RECOMMENDED SECONDARY REAGENTS

To ensure optimal results, the following support (secondary) reagents are recommended: 1) Western Blotting: use donkey anti-goat IgG-HRP: sc-2020 (dilution range: 1:2000-1:100,000) or Cruz Marker™ compatible donkey anti-goat IgG-HRP: sc-2033 (dilution range: 1:2000-1:5000), Cruz Marker™ Molecular Weight Standards: sc-2035, TBS Blotto A Blocking Reagent: sc-2333 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 donkey anti-goat IgG-FITC: sc-2024 (dilution range: 1:100-1:400) or donkey anti-goat IgG-TR: sc-2783 (dilution range: 1:100-1:400) with UltraCruz™ Mounting Medium: sc-24941. 4) Immunohistochemistry: use ImmunoCruz™: sc-2053 or ABC: sc-2023 goat IgG Staining Systems.

## DATA



PP2C $\kappa$  (T-20): sc-160683. Western blot analysis of PP2C $\kappa$  expression in non-transfected: sc-117752 (A) and human PP2C $\kappa$  transfected: sc-114960 (B) 293T whole cell lysates.



PP2C $\kappa$  (N-14): sc-160683. Immunoperoxidase staining of formalin fixed, paraffin-embedded human heart muscle tissue showing cytoplasmic staining of myocytes.

## RESEARCH USE

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