SANTA CRUZ BIOTECHNOLOGY, INC.

PP2Cα/β (D-8): sc-166662

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

BACKGROUND

Eukaryotic protein phosphorylation and dephosphorylation on serine and threonine residues regulates numerous cell functions, including division, homeostasis and apoptosis. A group of proteins that play a major role in this process are the serine/threonine protein phosphatases. Protein phosphatase (PP) holoenzyme is a trimeric complex that contains a regulatory subunit, a variable subunit and a catalytic subunit. PP2C family members are negative regulators of cell stress response pathways. Protein phosphatase 2Cα (PP2Cα) has broad specificity. It dephosphorylates and negatively regulates the activities of MAP kinases and MAP kinase-kinases while also inhibiting the activation of p38 and JNK kinase cascades, induced by environmental stresses. PP2Cα also induces the expression of endogenous p53 and the p53-responsive gene p21, leading to cell cycle arrest and apoptosis. The PP2Cα protein, which contains an active site containing a dinuclear metal ion center, shows highest expression in epithelial cells, as well as in the digestive tract, lung, kidney, breast, prostate, endocrine glands and brain. The PP2Cβ enzyme also has broad specificity and is highly expressed in the heart and skeletal muscle. It may be involved in cell cycle control as it dephosphorylates the cyclin-dependent kinases (CDKs), CDK2 and CDK6, *in vitro*. Overexpression of PP2Cβ can cause cell-growth arrest or cell death.

CHROMOSOMAL LOCATION

Genetic locus: PPM1A (human) mapping to 14q23.1, PPM1B (human) mapping to 2p21; Ppm1a (mouse) mapping to 12 C3, Ppm1b (mouse) mapping to 17 E4.

SOURCE

PP2Cα/β (D-8) is a mouse monoclonal antibody raised against amino acids 1-300 mapping at the N-terminus of PP2Cα 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.

PP2Cα/β (D-8) is available conjugated to agarose (sc-166662 AC), 500 µg/ 0.25 ml agarose in 1 ml, for IP; to HRP (sc-166662 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-166662 PE), fluorescein (sc-166662 FITC), Alexa Fluor® 488 (sc-166662 AF488), Alexa Fluor® 546 (sc-166662 AF546), Alexa Fluor® 594 (sc-166662 AF594) or Alexa Fluor® 647 (sc-166662 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-166662 AF680) or Alexa Fluor® 790 (sc-166662 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

Alexa Fluor® is a trademark of Molecular Probes, Inc., Oregon, USA

STORAGE

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

PROTOCOLS

See our web site at www.scbt.com for detailed protocols and support products.

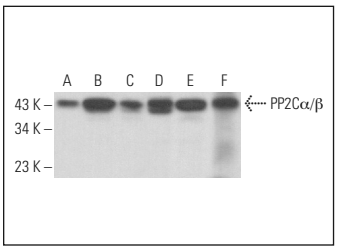
APPLICATIONS

PP2Cα/β (D-8) is recommended for detection of PP2Cα isoforms 1 and 2, and PP2Cβ 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) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

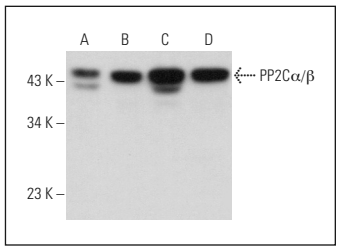
Molecular Weight of PP2Cα/β: 46 kDa.

Positive Controls: A-431 whole cell lysate: sc-2201, Ramos cell lysate: sc-2216 or Raji whole cell lysate: sc-364236.

DATA



PP2Cα/β (D-8): sc-166662. Western blot analysis of PP2Cα/β expression in 3T3-L1 (**A**), Raji (**B**), A2058 (**C**), NAMALWA (**D**) and WEHI-231 (**E**) whole cell lysates and rat spleen tissue extract (**F**).



PP2Cα/β (D-8): sc-166662. Western blot analysis of PP2Cα/β expression in A-431 (**A**), NIH/3T3 (**B**), Ramos (**C**) and PC-12 (**D**) whole cell lysates.

SELECT PRODUCT CITATIONS

1. Gergs, U., et al. 2019. Age-dependent protein expression of serine/ threonine phosphatases and their inhibitors in the human cardiac atrium. Adv. Med. 2019: 2675972.
2. Zhou, J., et al. 2020. Tripartite motif protein 52 (TRIM52) promoted fibrosis in LX-2 cells through PPM1A-mediated Smad2/3 pathway. Cell Biol. Int. 44: 108-116.
3. Liu, X., et al. 2020. Multiple protein and mRNA expression correlations in the rat cerebral cortex after ischemic injury and repair due to buchang naoxintong jiaonang (BNJ) intervention. Biomed. Pharmacother. 125: 109917.
4. Chang, J.W., et al. 2022. Claudin-1 mediates progression by regulating EMT through AMPK/TGF-β signaling in head and neck squamous cell carcinoma. Transl. Res. 247: 58-78.

RESEARCH USE

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