SANTA CRUZ BIOTECHNOLOGY, INC.

PP2A-B55 (D-10): sc-365282

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

BACKGROUND

In eukaryotes, the phosphorylation and dephosphorylation of proteins on serine and threonine residues is an essential means of regulating a broad range of cellular functions, including division, homeostasis and apoptosis. A group of proteins that are intimately involved in this process are the protein phosphatases. In general, the protein phosphatase (PP) holoenzyme is a trimeric complex composed of a regulatory subunit, a variable subunit and a catalytic subunit. Four major families of protein phosphatase catalytic subunits have been identified, designated PP1, PP2A, PP2B (calcineurin) and PP2C. An additional protein phosphatase catalytic subunit, PPX (also known as PP4) is a putative member of a novel PP family. The PP2A family comprises subfamily members PP2Aα and PP2Aβ. The PP2A catalytic subunit associates with a variety of regulatory subunits. The B family of regulatory subunits (including B55, B56 and PR72/130 subfamilies) is believed to participate in substrate specificity and catalytic activity. PP2A-B55, also known as PP2A regulatory subunit subfamily B55 or PP2A-B1, is a B subfamily consisting of four B55 isoforms (α, β, γ and δ) encoded by four distinct genes.

SOURCE

PP2A-B55 (D-10) is a mouse monoclonal antibody raised against amino acids 148-447 mapping at the C-terminus of PP2A-B55-α 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.

PP2A-B55 (D-10) is available conjugated to agarose (sc-365282 AC), 500 µg/0.25 ml agarose in 1 ml, for IP; to HRP (sc-365282 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-365282 PE), fluorescein (sc-365282 FITC), Alexa Fluor® 488 (sc-365282 AF488), Alexa Fluor® 546 (sc-365282 AF546), Alexa Fluor® 594 (sc-365282 AF594) or Alexa Fluor® 647 (sc-365282 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-365282 AF680) or Alexa Fluor® 790 (sc-365282 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

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

APPLICATIONS

PP2A-B55 (D-10) is recommended for detection of PP2A-B55-α, -β, -γ and -δ isoforms 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).

PP2A-B55 (D-10) is also recommended for detection of PP2A-B55-α, -β, -γ and -δ isoforms in additional species, including equine, canine, bovine and porcine.

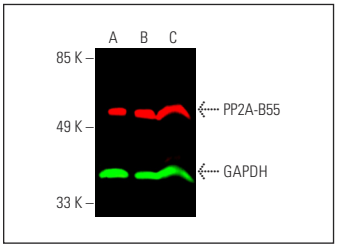
Molecular Weight of PP2A-B55: 55 kDa.

Positive Controls: M1 whole cell lysate: sc-364782, RAW 264.7 whole cell lysate: sc-2211 or KNRK whole cell lysate: sc-2214.

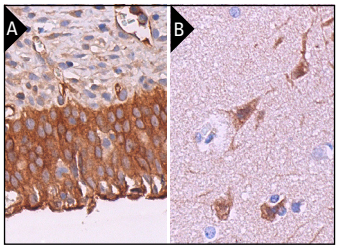
STORAGE

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

DATA



Simultaneous direct near-infrared western blot analysis of PP2A-B55 expression, detected with PP2A-B55 (D-10) Alexa Fluor® 790: sc-365282 AF790 and GAPDH expression, detected with GAPDH (G-9) Alexa Fluor® 680: sc-365062 AF680 in M1 (**A**), RAW 264.7 (**B**) and KNRK (**C**) whole cell lysates. Blocked with UltraCruz® Blocking Reagent: sc-516214.



PP2A-B55 (D-10) sc-365282. Immunoperoxidase staining of formalin fixed, paraffin-embedded human urinary bladder tissue showing cytoplasmic staining of urothelial cells (**A**). Immunoperoxidase staining of formalin fixed, paraffin-embedded human cerebral cortex tissue showing cytoplasmic staining of neuronal cells (**B**).

SELECT PRODUCT CITATIONS

1. Hégarat, N., et al. 2014. PP2A/B55 and Fcp1 regulate Greatwall and Ensa dephosphorylation during mitotic exit. PLoS Genet. 10: e1004004.
2. Qian, J., et al. 2017. An attachment-independent biochemical timer of the spindle assembly checkpoint. Mol. Cell 68: 715-730.e5.
3. Ueda, T., et al. 2019. IER family proteins are regulators of protein phosphatase PP2A and modulate the phosphorylation status of CDC25A. Cell. Signal. 55: 81-89.
4. Nasa, I., et al. 2020. Quantitative kinase and phosphatase profiling reveal that CDK1 phosphorylates PP2Ac to promote mitotic entry. Sci. Signal. 13: eaba7823.
5. Lyons, S.P., et al. 2021. Regulation of PP2A, PP4, and PP6 holoenzyme assembly by carboxyl-terminal methylation. Sci. Rep. 11: 23031.
6. Seo, S.H., et al. 2022. PTEN/Akt signaling pathway related to hTERT downregulation and telomere shortening induced in *Toxoplasma* GRA16-expressing colorectal cancer cells. Biomed. Pharmacother. 153: 113366.
7. Doi, K., et al. 2023. PP2A-B55 and its adapter proteins IER2 and IER5 regulate the activity of RB family proteins and the expression of cell cycle-related genes. FEBS J. 290: 745-762.

RESEARCH USE

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

PROTOCOLS

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