SANTA CRUZ BIOTECHNOLOGY, INC.

PDPc (D-11): sc-398117

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

BACKGROUND

Pyruvate dehydrogenase phosphatase (PDP) is a serine phosphatase that catalyzes the dephosphorylation and reactivation of the α subunit of the E1 component of the mitochondrial pyruvate dehydrogenase multienzyme complex. PDP is a heterodimer that consists of catalytic and regulatory subunits. PDPc (pyruvate dehydrogenase phosphatase, catalytic subunit 1), also known as protein phosphatase 2C, is a 537 amino acid protein that is localized within the mitochondrial matrix. PDPc is stimulated by calcium binding and utilizes two magnesium ions as cofactors. PDPc efficiently dephosphorylates all three phosphorylation sites located on the α chain of the E1 component, which simultaneously activates pyruvate dehydrogenase to convert pyruvate to acetyl-CoA for utilization in the Kreb's cycle. Defects in the gene encoding PDPc are the cause of pyruvate dehydrogenase phosphatase deficiency, which results in lactic acidosis and neurological dysfunction.

REFERENCES

1. Hu, R.M., et al. 2000. Gene expression profiling in the human hypothalamus-pituitary-adrenal axis and full-length cDNA cloning. Proc. Natl. Acad. Sci. USA 97: 9543-9548.
2. Patel, M.S. and Korotchkina, L.G. 2001. Regulation of mammalian pyruvate dehydrogenase complex by phosphorylation: complexity of multiple phosphorylation sites and kinases. Exp. Mol. Med. 33: 191-197.
3. Karpova, T., et al. 2003. Characterization of the isozymes of pyruvate dehydrogenase phosphatase: implications for the regulation of pyruvate dehydrogenase activity. Biochim. Biophys. Acta 1652: 126-135.
4. Karpova, T., et al. 2004. Probing a putative active site of the catalytic subunit of pyruvate dehydrogenase phosphatase 1 (PDP1c) by site-directed mutagenesis. Biochim. Biophys. Acta 1700: 43-51.

CHROMOSOMAL LOCATION

Genetic locus: PDP1 (human) mapping to 8q22.1; Pdp1 (mouse) mapping to 4 A1.

SOURCE

PDPc (D-11) is a mouse monoclonal antibody raised against amino acids 1-156 mapping at the N-terminus of PDPc 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.

PDPc (D-11) is available conjugated to agarose (sc-398117 AC), 500 µg/ 0.25 ml agarose in 1 ml, for IP; to HRP (sc-398117 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-398117 PE), fluorescein (sc-398117 FITC), Alexa Fluor® 488 (sc-398117 AF488), Alexa Fluor® 546 (sc-398117 AF546), Alexa Fluor® 594 (sc-398117 AF594) or Alexa Fluor® 647 (sc-398117 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-398117 AF680) or Alexa Fluor® 790 (sc-398117 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

APPLICATIONS

PDPc (D-11) is recommended for detection of PDPc 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).

Suitable for use as control antibody for PDPc siRNA (h): sc-77635, PDPc siRNA (m): sc-152141, PDPc shRNA Plasmid (h): sc-77635-SH, PDPc shRNA Plasmid (m): sc-152141-SH, PDPc shRNA (h) Lentiviral Particles: sc-77635-V and PDPc shRNA (m) Lentiviral Particles: sc-152141-V.

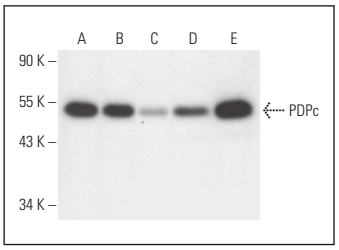
Molecular Weight of PDPc: 53 kDa.

Positive Controls: HEK293 whole cell lysate: sc-45136, Hep G2 cell lysate: sc-2227 or SH-SY5Y cell lysate: sc-3812.

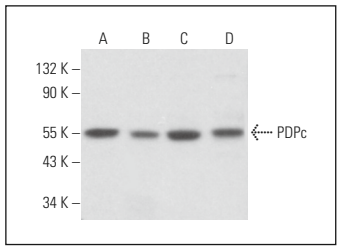
RECOMMENDED SUPPORT REAGENTS

To ensure optimal results, the following support reagents are recommended: 1) Western Blotting: use m-IgGκ BP-HRP: sc-516102 or m-IgGκ BP-HRP (Cruz Marker): sc-516102-CM (dilution range: 1:1000-1:10000), Cruz Marker™ Molecular Weight Standards: sc-2035, UltraCruz® 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-IgGκ BP-FITC: sc-516140 or m-IgGκ BP-PE: sc-516141 (dilution range: 1:50-1:200) with UltraCruz® Mounting Medium: sc-24941 or UltraCruz® Hard-set Mounting Medium: sc-359850.

DATA



PDPc (D-11): sc-398117. Western blot analysis of PDPc expression in Jurkat (**A**), PC-12 (**B**), Hep G2 (**C**), HEK293 (**D**) and SH-SY5Y (**E**) whole cell lysates.



PDPc (D-11): sc-398117. Western blot analysis of PDPc expression in Jurkat (**A**), NIH/3T3 (**B**), C3H/10T1/2 (**C**) and L6 (**D**) whole cell lysates.

SELECT PRODUCT CITATIONS

1. Sato, T., et al. 2022. Enhanced glucose metabolism through activation of HIF-1α covers the energy demand in a rat embryonic heart primordium after heartbeat initiation. Sci. Rep. 12: 74.

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.