SANTA CRUZ BIOTECHNOLOGY, INC.

PDK4 (A-7): sc-518103

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

BACKGROUND

Pyruvate dehydrogenase kinase family members (PDK1, 2, 3, 4) are serine kinases that catalyze phosphorylation of the E1α subunit of the pyruvate dehydrogenase complex (PDC). PDC activity is controlled through phosphorylation and dephosphorylation of the E1α subunit, which leads to inactivation and reactivation, respectively. Upregulation of PDK isoenzymes occurs during starvation conditions, where acetyl-CoA is alternatively generated through fatty acid oxidation. PDKs contain five conserved regions and are mechanistically similar to bacterial His-kinases since both require histidine residues for activity. In mammals, transcripts for PDK4 are most abundant in heart and skeletal muscle. PDK4 protein levels increase in starved or diabetic rat cardiac muscle and decrease upon re-feeding or Insulin exposure, suggesting that PDK4 protein levels are important for long-term regulation of PDC activity in heart.

REFERENCES

1. Gudi, R., et al. 1995. Diversity of the pyruvate dehydrogenase kinase gene family in humans. J. Biol. Chem. 270: 28989-28994.
2. Bowker-Kinley, M.M., et al. 1998. Evidence for existence of tissue-specific regulation of the mammalian pyruvate dehydrogenase complex. Biochem. J. 329: 191-196.
3. Sugden, M.C., et al. 2000. Selective modification of the pyruvate dehydrogenase kinase isoform profile in skeletal muscle in hyperthyroidism: implications for the regulatory impact of glucose on fatty acid oxidation. J. Endocrinol. 167: 339-345.
4. Mooney, B.P., et al. 2000. Histidine modifying agents abolish pyruvate dehydrogenase kinase activity. Biochem. Biophys. Res. Commun. 267: 500-503.

CHROMOSOMAL LOCATION

Genetic locus: PDK4 (human) mapping to 7q21.3; Pdk4 (mouse) mapping to 6 A1.

SOURCE

PDK4 (A-7) is a mouse monoclonal antibody specific for an epitope mapping between amino acids 386-407 near the C-terminus of PDK4 of human origin.

PRODUCT

Each vial contains 200 µg IgG_3 kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

PDK4 (A-7) is available conjugated to agarose (sc-518103 AC), 500 µg/0.25 ml agarose in 1 ml, for IP; to HRP (sc-518103 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-518103 PE), fluorescein (sc-518103 FITC), Alexa Fluor® 488 (sc-518103 AF488), Alexa Fluor® 546 (sc-518103 AF546), Alexa Fluor® 594 (sc-518103 AF594) or Alexa Fluor® 647 (sc-518103 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-518103 AF680) or Alexa Fluor® 790 (sc-518103 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

APPLICATIONS

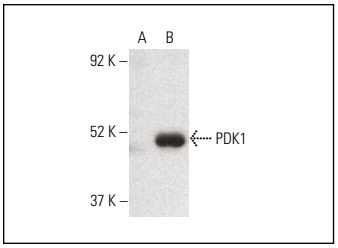
PDK4 (A-7) is recommended for detection of PDK4 of mouse, rat and human origin by Western Blotting (starting dilution 1:100, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000); may cross-react with PDK1.

Suitable for use as control antibody for PDK4 siRNA (h): sc-39030, PDK4 siRNA (m): sc-39031, PDK4 shRNA Plasmid (h): sc-39030-SH, PDK4 shRNA Plasmid (m): sc-39031-SH, PDK4 shRNA (h) Lentiviral Particles: sc-39030-V and PDK4 shRNA (m) Lentiviral Particles: sc-39031-V.

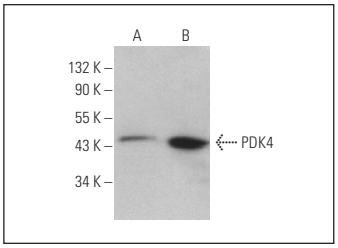
Molecular Weight of PDK4: 47 kDa.

Positive Controls: PDK1 (h): 293T Lysate: sc-113873 or mouse PDK4 transfected 293T whole cell lysate.

DATA



PDK4 (A-7): sc-518103. Western blot analysis of PDK1 expression in non-transfected: sc-117752 (**A**) and human PDK1 transfected: sc-113873 (**B**) 293T whole cell lysates. Detection reagent used: m-IgGκ BP-HRP: sc-516102.



PDK4 (A-7): sc-518103. Western blot analysis of PDK4 expression in non-transfected (**A**) and mouse PDK4 transfected (**B**) 293T whole cell lysates. Detection reagent used: m-IgGκ BP-HRP (Cruz Marker): sc-516102-CM.

SELECT PRODUCT CITATIONS

1. Yang, Y.Y., et al. 2022. Pyruvate dehydrogenase kinase 4 promotes osteoblastic potential of BMP9 by boosing Wnt/β-catenin signaling in mesenchymal stem cells. Int. J. Biochem. Cell Biol. 154: 106341.
2. Yang, Y.Y., et al. 2023. lncRNA MEG3 promotes PDK4/GSK-3β/β-catenin axis in MEFs by targeting miR-532-5p. Oxid. Med. Cell. Longev. 2023: 3563663.
3. Liu, Z., et al. 2023. Iron promotes glycolysis to drive colon tumorigenesis. Biochim. Biophys. Acta Mol. Basis Dis. 1869: 166846.

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 for detailed protocols and support products.