SANTA CRUZ BIOTECHNOLOGY, INC.

PDK1 (E-10): sc-515944

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

BACKGROUND

Mitochondrial pyruvate dehydrogenase (PDH) catalyzes the oxidative decarboxylation of pyruvate and plays a central role in the regulation of homeostasis of carbohydrate fuels in mammals. PDH activity is controlled by a phosphorylation/dephosphorylation cycle, phosphorylation leading to inactivation and dephosphorylation leading to reactivation of PDH. The phosphorylation of PDH is catalyzed by pyruvate dehydrogenase kinase (PDK), the activity of which is stimulated by the products of PDH catalysis. PDK1 consists of α and β subunits; the kinase activity resides in the α subunit. Three PDK isoenzymes have been identified in humans (PDK1, 2 and 3) and two have been identified in rodent (PDK1 and 2).

REFERENCES

1. Linn, T.C., et al. 1969. α-keto acid dehydrogenase complexes. X. Regulation of the activity of the pyruvate dehydrogenase complex from beef kidney mitochondria by phosphorylation and dephosphorylation. Proc. Natl. Acad. Sci. USA 62: 234-241.
2. Hucho, F., et al. 1972. α-keto acid dehydrogenase complexes. XVII. Kinetic and regulatory properties of pyruvate dehydrogenase kinase and pyruvate dehydrogenase phosphatase from bovine kidney and heart. Arch. Biochem. Biophys. 151: 328-340.

CHROMOSOMAL LOCATION

Genetic locus: PDK1 (human) mapping to 2q31.1; Pdk1 (mouse) mapping to 2 C3.

SOURCE

PDK1 (E-10) is a mouse monoclonal antibody specific for an epitope mapping between amino acids 410-436 at the C-terminus of PDK1 of human origin.

PRODUCT

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

APPLICATIONS

PDK1 (E-10) is recommended for detection of precursor and mature PDK1 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 PDK1 siRNA (h): sc-36203, PDK1 siRNA (m): sc-36204, PDK1 shRNA Plasmid (h): sc-36203-SH, PDK1 shRNA Plasmid (m): sc-36204-SH, PDK1 shRNA (h) Lentiviral Particles: sc-36203-V and PDK1 shRNA (m) Lentiviral Particles: sc-36204-V.

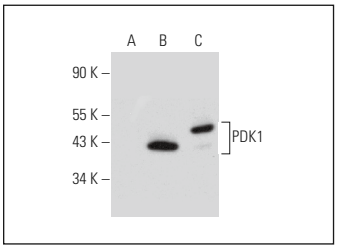
Molecular Weight of PDK1: 49 kDa.

Positive Controls: mouse heart extract: sc-2254, PDK1 (h): 293T Lysate: sc-113873 or rat heart extract: sc-2393.

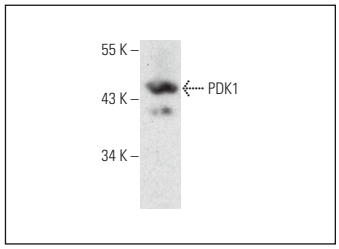
RECOMMENDED SUPPORT REAGENTS

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 L-Agarose: sc-2336 (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



PDK1 (E-10): sc-515944. Western blot analysis of PDK1 expression in non-transfected 293T: sc-117752 (**A**), human PDK1 transfected 293T: sc-113873 (**B**) whole cell lysates and rat heart tissue extract (**C**).



PDK1 (E-10): sc-515944. Western blot analysis of PDK1 expression in mouse heart tissue extract.

SELECT PRODUCT CITATIONS

1. Hong, S.G., et al. 2022. Flow pattern-dependent mitochondrial dynamics regulates the metabolic profile and inflammatory state of endothelial cells. JCI Insight 7: e159286.
2. Park, S., et al. 2022. Transcription factors TEAD2 and E2A globally repress acetyl-CoA synthesis to promote tumorigenesis. Mol. Cell 82: 4246-4261.e11.
3. Matsuoka, K., et al. 2023. Metabolic rewiring controlled by c-Fos governs cartilage integrity in osteoarthritis. Ann. Rheum. Dis. 82: 1227-1239.
4. Qiao, L., et al. 2024. USP11 promotes glycolysis by regulating HIF-1α stability in hepatocellular carcinoma. J. Cell. Mol. Med. 28: e18017.
5. Yuan, L., et al. 2024. Minnelide exhibits antileukemic activity by targeting the Ars2/miR-190a-3p axis. Phytomedicine 130: 155724.

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.