

PDK2 (3F2D7): sc-517284

BACKGROUND

Pyruvate dehydrogenase kinase family members (PDK1, 2, 3, 4) are serine kinases that catalyze the phosphorylation of the E1 α subunit of the pyruvate dehydrogenase complex (PDC). PDC activity is controlled through phosphorylation and dephosphorylation of the E1 α subunit, which leads to inactivation and reactivation, respectively. The core of PDC is composed of 60 dihydroxy-poyl acetyltransferase (E2) subunits that bind directly to PDK2 and enhance PDK2 kinase activity. Upregulation of PDK isoenzymes occurs during starvation conditions, rerouting acetyl-CoA generation by facilitating fatty acid oxidation. PDKs contain five conserved regions and are mechanistically similar to bacterial His-kinases, in that both require Histidine residues for activity. In mammals, transcripts for PDK2 are ubiquitously expressed with high levels in heart and skeletal muscle and decreased levels in spleen and lung.

REFERENCES

- Gudi, R., et al. 1995. Diversity of the pyruvate dehydrogenase kinase gene family in humans. *J. Biol. Chem.* 270: 28989-28994.
- 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.
- 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.

CHROMOSOMAL LOCATION

Genetic locus: PDK2 (human) mapping to 17q21.33; Pdk2 (mouse) mapping to 11 D.

SOURCE

PDK2 (3F2D7) is a mouse monoclonal antibody raised against a recombinant protein corresponding to amino acids 178-404 of PDK2 of human origin.

PRODUCT

Each vial contains 200 μ g IgG_{2b} kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

PDK2 (3F2D7) is available conjugated to agarose (sc-517284 AC), 500 μ g/0.25 ml agarose in 1 ml, for IP; to HRP (sc-517284 HRP), 200 μ g/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-517284 PE), fluorescein (sc-517284 FITC), Alexa Fluor[®] 488 (sc-517284 AF488), Alexa Fluor[®] 546 (sc-517284 AF546), Alexa Fluor[®] 594 (sc-517284 AF594) or Alexa Fluor[®] 647 (sc-517284 AF647), 200 μ g/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor[®] 680 (sc-517284 AF680) or Alexa Fluor[®] 790 (sc-517284 AF790), 200 μ g/ml, for Near-Infrared (NIR) WB, IF and FCM.

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STORAGE

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

APPLICATIONS

PDK2 (3F2D7) is recommended for detection of PDK2 of mouse, rat and human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunoprecipitation [1-2 μ g per 100-500 μ g of total protein (1 ml of cell lysate)], flow cytometry (1 μ g per 1 x 10⁶ cells) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

Suitable for use as control antibody for PDK2 siRNA (h): sc-39027, PDK2 siRNA (m): sc-39028, PDK2 shRNA Plasmid (h): sc-39027-SH, PDK2 shRNA Plasmid (m): sc-39028-SH, PDK2 shRNA (h) Lentiviral Particles: sc-39027-V and PDK2 shRNA (m) Lentiviral Particles: sc-39028-V.

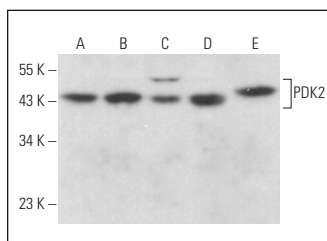
Molecular Weight of PDK2: 46 kDa.

Positive Controls: Jurkat whole cell lysate: sc-2204, A-10 cell lysate: sc-3806 or A-431 whole cell lysate: sc-2201.

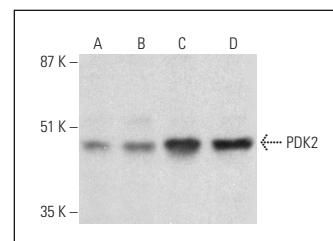
RECOMMENDED SUPPORT REAGENTS

To ensure optimal results, the following support reagents are recommended: 1) Western Blotting: use m-IgG κ BP-HRP: sc-516102 or m-IgG κ 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).

DATA



PDK2 (3F2D7): sc-517284. Western blot analysis of PDK2 expression in A-10 (A), Sol8 (B), SJRH30 (C), U-87 MG (D) and C2C12 (E) whole cell lysates.



PDK2 (3F2D7): sc-517284. Western blot analysis of PDK2 expression in Jurkat (A), A-431 (B), A-10 (C) and C6 (D) whole cell lysates.

SELECT PRODUCT CITATIONS

- Zhuang, Y., et al. 2019. The novel function of tumor protein D54 in regulating pyruvate dehydrogenase and metformin cytotoxicity in breast cancer. *Cancer Metab.* 7: 1.
- Xu, Z.X., et al. 2019. Caspase-2 promotes AMPA receptor internalization and cognitive flexibility via mTORC2-AKT-GSK3 β signaling. *Nat. Commun.* 10: 3622.
- Wiedner, H.J., et al. 2022. SET domain containing 2 (SETD2) influences metabolism and alternative splicing during myogenesis. *FEBS J.* E-published.

RESEARCH USE

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