SANTA CRUZ BIOTECHNOLOGY, INC.

PDK4 (P-24): sc-130841

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.
5. Baker, J.C., et al. 2000. Marked differences between two isoforms of human pyruvate dehydrogenase kinase. J. Biol. Chem. 275: 15773-15781.
6. Wu, P., et al. 2000. Starvation increases the amount of pyruvate dehydrogenase kinase in several mammalian tissues. Arch. Biochem. Biophys. 381: 1-7.

CHROMOSOMAL LOCATION

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

SOURCE

PDK4 (P-24) is a purified rabbit polyclonal antibody raised against a peptide mapping near the C-terminus of PDK4 of human origin.

PRODUCT

Each vial contains 100 µg IgG in 1.0 ml PBS with < 0.1% sodium azide and 0.1% gelatin.

STORAGE

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

APPLICATIONS

PDK4 (P-24) is recommended for detection of PDK4 of mouse and human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)] and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

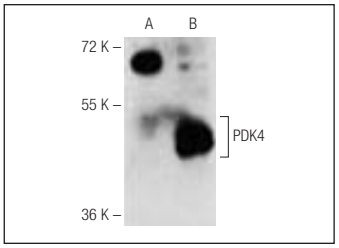
Suitable for use as control antibody for PDK4 siRNA (h): sc-39030, PDK4 siRNA (m): sc-39031, PDK4 shRNA Plasmid (h): sc-39030-SH, PDK4 shRNA Plasmid (m): sc-39031-SH, PDK4 shRNA (h) Lentiviral Particles: sc-39030-V and PDK4 shRNA (m) Lentiviral Particles: sc-39031-V.

Molecular Weight of PDK4: 46 kDa.

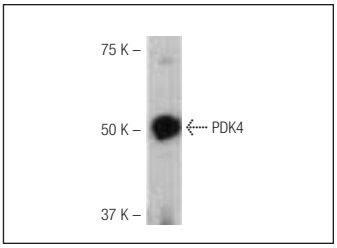
RECOMMENDED SECONDARY REAGENTS

To ensure optimal results, the following support (secondary) reagents are recommended: 1) Western Blotting: use goat anti-rabbit IgG-HRP: sc-2004 (dilution range: 1:2000-1:100,000) or Cruz Marker™ compatible goat anti-rabbit IgG-HRP: sc-2030 (dilution range: 1:2000-1:5000), Cruz Marker™ Molecular Weight Standards: sc-2035, TBS Blotto A Blocking Reagent: sc-2333 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



PDK4 (P-24): sc-130841. Western blot analysis of PDK4 expression in non-transfected (A) and human PDK4 transfected (B) 293 whole cell lysates.



PDK4 (P-24): sc-130841. Western blot analysis of PDK4 expression in mouse skeletal muscle tissue extract.

RESEARCH USE

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

PROTOCOLS

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