

## PDK4 (N-15): sc-14492

### BACKGROUND

Pyruvate dehydrogenase kinase family members (PDK1, 2, 3 and 4) are Serine kinases that catalyze phosphorylation of the E1 $\alpha$  subunit of the pyruvate dehydrogenase complex (PDC). PDC activity is controlled through phosphorylation and dephosphorylation of the E1 $\alpha$  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

- 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.
- Mooney, B.P., et al. 2000. Histidine modifying agents abolish pyruvate dehydrogenase kinase activity. *Biochem. Biophys. Res. Commun.* 267: 500-503.
- Baker, J.C., et al. 2000. Marked differences between two isoforms of human pyruvate dehydrogenase kinase. *J. Biol. Chem.* 275: 15773-15781.
- 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 (N-15) is an affinity purified goat polyclonal antibody raised against a peptide mapping near the N-terminus of PDK4 of human origin.

### PRODUCT

Each vial contains 200  $\mu$ g IgG in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Blocking peptide available for competition studies, sc-14492 P, (100  $\mu$ g peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

### APPLICATIONS

PDK4 (N-15) is recommended for detection of PDK4 of mouse, rat and human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500), immunohistochemistry (including paraffin-embedded sections) (starting dilution 1:50, dilution range 1:50-1:500) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

PDK4 (N-15) is also recommended for detection of PDK4 in additional species, including equine, bovine and porcine.

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.

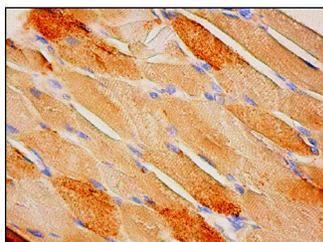
Molecular Weight of PDK4: 47 kDa.

Positive Controls: mouse skeletal muscle extract: sc-364250.

### RECOMMENDED SECONDARY REAGENTS

To ensure optimal results, the following support (secondary) reagents are recommended: 1) Western Blotting: use donkey anti-goat IgG-HRP: sc-2020 (dilution range: 1:2000-1:100,000) or Cruz Marker™ compatible donkey anti-goat IgG-HRP: sc-2033 (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) Immunofluorescence: use donkey anti-goat IgG-FITC: sc-2024 (dilution range: 1:100-1:400) or donkey anti-goat IgG-TR: sc-2783 (dilution range: 1:100-1:400) with UltraCruz™ Mounting Medium: sc-24941. 3) Immunohistochemistry: use ImmunoCruz™: sc-2053 or ABC: sc-2023 goat IgG Staining Systems.

### DATA



PDK4 (N-15): sc-14492. Immunoperoxidase staining of formalin fixed, paraffin-embedded human skeletal muscle tissue showing cytoplasmic staining of myocytes.

### 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.