

PDK3 (h): 293 Lysate: sc-112250

BACKGROUND

Pyruvate dehydrogenase kinase family members (PDK1, 2, 3 and 4) are serine kinases that catalyze 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. PDK3 binding to a free lipoyl domain (L2) in dihydrolipoyl acetyltransferase (E2), which comprises the core of PDC, leads to a large increase in E1 α phosphorylation. 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 in that both require histidine residues for activity. In mammals, transcripts for PDK3 are most abundant in testis and moderately expressed in heart and skeletal muscle.

REFERENCES

1. Gudi, R., Bowker-Kinley, M.M., Kedishvili, N.Y., Zhao, Y. and Popov, K.M. 1995. Diversity of the pyruvate dehydrogenase kinase gene family in humans. *J. Biol. Chem.* 270: 28989-28994. Erratum in 1996 *J. Biol. Chem.* 271: 1250.
2. Bowker-Kinley, M.M., Davis, W.I., Wu, P., Harris, R.A. and Popov, K.M. 1998. Evidence for existence of tissue-specific regulation of the mammalian pyruvate dehydrogenase complex. *Biochem. J.* 329: 191-196.
3. Sugden, M.C., Lall, H.S., Harris, R.A. and Holness, M.J. 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., David, N.R., Thelen, J.J., Miernyk, J.A. and Randall, D.D. 2000. Histidine modifying agents abolish pyruvate dehydrogenase kinase activity. *Biochem. Biophys. Res. Commun.* 267: 500-503.
5. Baker, J.C., Yan, X., Peng, T., Kasten, S. and Roche, T.E. 2000. Marked differences between two isoforms of human pyruvate dehydrogenase kinase. *J. Biol. Chem.* 275: 15773-15781.
6. Wu, P., Blair, P.V., Sato, J., Jaskiewicz, J., Popov, K.M. and Harris, R.A. 2000. Starvation increases the amount of pyruvate dehydrogenase kinase in several mammalian tissues. *Arch. Biochem. Biophys.* 381: 1-7.

CHROMOSOMAL LOCATION

Genetic locus: PDK3 (human) mapping to Xp22.11.

PRODUCT

PDK3 (h): 293 Lysate represents a lysate of human PDK3 transfected 293 cells and is provided as 100 μ g protein in 200 μ l SDS-PAGE buffer.

STORAGE

Store at -20° C. Repeated freezing and thawing should be minimized. Sample vial should be boiled once prior to use. Non-hazardous. No MSDS required.

RESEARCH USE

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

APPLICATIONS

PDK3 (h): 293 Lysate is suitable as a Western Blotting positive control for human reactive PDK3 antibodies. Recommended use: 10-20 μ l per lane.

Control 293 Lysate: sc-110760 is available as a Western Blotting negative control lysate derived from non-transfected 293 cells.

PROTOCOLS

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