Data Sheet (Cat.No.TMPY-04568)

TargetMol

PDK1 Protein, Human, Recombinant (His)

General Information

Synonyms:	pyruvate dehydrogenase kinase, isozyme 1;PDHK1
Protein Construction:	A DNA sequence encoding the mature form of human PDK1 (NP_002601.1) (Ser 29-Ala 436) was expressed, with a polyhistidine tag at the N-terminus. Predicted N terminal: His
Species:	Human
Expression Host:	Baculovirus Insect Cells
Accession:	Q15118-1
Molecular Weight:	48.6 kDa (predicted); 45 kDa (reducing conditions)

QC Testing

Biological Activity:	No Kinase Activity
Purity:	> 90 % as determined by SDS-PAGE
Endotoxin:	< 1.0 EU/μg of the protein as determined by the LAL method.
Formulation:	Lyophilized from a solution filtered through a 0.22 μm filter, containing 20 mM Tris, 500 mM NaCl, pH 8.5, 10% glycerol. Typically, a mixture containing 5% to 8% trehalose, mannitol, and 0.01% Tween 80 is incorporated as a protective agent before lyophilization.

Preparation and Storage

Reconstitution:

Reconstituted with sterile deionized water to 0.1 mg/mL. Reconstitution conditions may vary depending on the lot.

Stability & Storage:

It is recommended to store recombinant proteins at -20°C to -80°C for future use. Lyophilized powders can be stably stored for over 12 months, while liquid products can be stored for 6-12 months at -80°C. For reconstituted protein solutions, the solution can be stored at -20°C to -80°C for at least 3 months. Please avoid multiple freeze-thaw cycles and store products in aliquots.

Actual storage temperature shall be subject to the COA.

Shipping:

In general, lyophilized powders are shipped with blue ice, while solutions are shipped with dry ice.

Protein Background

Pyruvate dehydrogenase kinase, isozyme 1, also known as [Pyruvate dehydrogenase [lipoamide]] kinase isozyme 1, mitochondrial and PDK1, is a member of the PDK / BCKDK protein kinase family. PDK-1 is expressed predominantly in the heart. It contains one histidine kinase domain. Pyruvate dehydrogenase kinase (PDK) isoforms are molecular switches that downregulate the pyruvate dehydrogenase complex (PDC) by reversible phosphorylation in mitochondria. An inhibitory effect of lipoic acid on PDKs would result in less phosphorylation of E1 and hence increased PDC activity. At least two isoenzymic forms of pyruvate dehydrogenase kinase (PDK-1 and

PDK-2) may be involved in the regulation of enzymatic activity of mammalian pyruvate dehydrogenase complex by phosphorylation. PDK-3 appears to have the highest specific activity among the three isoenzymes. PDK-1 inhibits the mitochondrial pyruvate dehydrogenase complex by phosphorylation of the E1 alpha subunit, thus contributing to the regulation of glucose metabolism.

Reference

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Mooney,B.P. et al., 2000, Biochem Biophys Res Commun. 267 (2): 500 - 503.
Korotchkina,L.G. et al., 2004, Free Radic Res. 38 (10):1083-92.
Kato M., et al., 2007, Structure 15: 992-1004.