PDK4 Protein, Human (GST)

Cat. No.:	HY-P701737
Synonyms:	PDK4; [Pyruvate dehydrogenase (acetyl-transferring)] kinase isozyme 4; mitochondrial; Pyruvate dehydrogenase kinase isoform 4
Species:	Human
Source:	E. coli
Accession:	Q16654 (M1-M411)
Gene ID:	5166
Molecular Weight:	

PROPERTIES

Appearance	Solution.
Formulation	Supplied as a 0.22 μm filtered solution of 50 mM Tris-HCl, pH7.5, 200 mM NaCl, 20% glycerol.
Endotoxin Level	<1 EU/μg, determined by LAL method.
Reconsititution	Please use rapid thawing with running water to thaw the protein.
Storage & Stability	Stored at -80°C for 1 year. It is stable at -20°C for 3 months after opening. It is recommended to freeze aliquots at -80°C for extended storage. Avoid repeated freeze-thaw cycles.
Shipping	Shipping with dry ice.

DESCRIPTION

Background	PDK4, a pivotal kinase in the intricate orchestration of glucose and fatty acid metabolism, exerts its regulatory influence through the phosphorylation of pyruvate dehydrogenase subunits PDHA1 and PDHA2. By inhibiting pyruvate dehydrogenase activity, PDK4 finely tunes metabolite flux within the tricarboxylic acid cycle, dampens aerobic respiration, and curtails the conversion of pyruvate into acetyl-coenzyme A. This orchestrated inhibition, especially during prolonged fasting and starvation, reduces glucose utilization and enhances fat metabolism, crucial for energy homeostasis. Notably, PDK4 plays a crucial role in maintaining normal blood glucose levels under conditions of nutrient scarcity and is intricately involved in the insulin signaling cascade. Its modulation of pyruvate dehydrogenase activity not only helps regulate blood pH but also prevents the accumulation of ketone bodies during starvation. In the fed state, PDK4 mediates cellular responses to varying glucose levels and high-fat diets, acting as a key regulator of both fatty acid oxidation and de novo fatty acid biosynthesis. Furthermore, PDK4 contributes to the generation of reactive oxygen species, protects detached epithelial cells against anoikis, and participates in cell proliferation through its role in regulating carbohydrate and fatty acid metabolism.

Caution: Product has not been fully validated for medical applications. For research use only.

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