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TECHNICAL DATA SHEET

PDH Phosphatase 1 (PDP1)

Catalog # MSP45

Rev.0

LOT #:

COMPONENTS:	50 µg human recombinant PDP1
APPLICATIONS:	Dephosphorylation (activation) of PDH
CONCENTRATION:	1.5 mg/mL in 10 mM $NaPO_4$, pH 7.5, 250 mM NaCl, 30% glycerol, 5 mM DTT, 0.5 mM EDTA, 0.05% Triton X-100
STORAGE CONDITIONS:	Store at -80°C.
COUNTRY OF ORIGIN:	USA

BACKGROUND:

Shifts in metabolism are often regulated by reversible phosphorylation of particular amino-acids within regulatory enzymes. The pyruvate dehydrogenase complex (PDH, or PDC) (E.C.1.2.4.1) is a key regulatory enzyme in carbohydrate metabolism. This multimeric enzyme complex is composed of five proteins: E1α, E1β, E2, E3 and the E3 binding protein, which are present in a conserved stoichiometric manner. Tissue- and diet-specific regulation of PDH occur via four PDH kinases (E.C.2.7.11.2), PDK1, 2, 3 and 4, and two PDH phosphatases (E.C. 3.1.3.43), PDP1 and 2.

The PDH kinases are members of the serine/threonine class of kinase enzymes. These ATP-dependent enzymes are bound to the E2 domain of PDH and phosphorylate three particular serine residues within the E1α subunit, thus inhibiting enzyme activity (see Figure 1). Aberrant regulation of PDKs has been observed in metabolic diseases such as diabetes, and is also related to changes in cancer tumor genesis. As a result, there is much interest in identifying drug candidates that regulate PDH kinase activity.

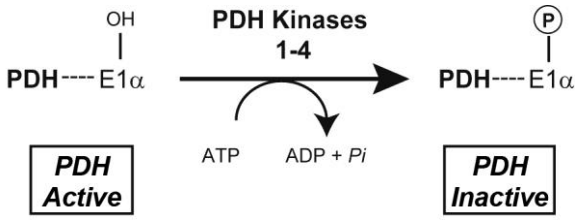

Figure 1. *Schematic of the PDH kinase reaction. ATP-dependent phosphorylation of PDH occurs at serines 232, 293, and 300 of the E1α subunit. Phosphorylation results in inactivation of the PDH complex.*

This product provides the researcher with active, human recombinant PDP1. His-tagged PDP1 was bacterial-expressed and column-purified. The enzyme is supplied in a buffer perfectly suited for use with our PDH enzyme activity assays (MSP18 and MSP30). Also available are immunocapture assays for measuring total PDH levels, and companion phospho-specific detector antibodies against all three phosphorylation sites. Please see http://www.mitosciences.com/pyruvate dehydrogenase.html for a complete list of available products. For a review of PDH, including an overview of protocols for using the PDK's and PDP's with our PDH enzyme activity and protein quantity assays, please download our PDH Playbook (http://www.mitosciences.com/pdh_playbook.pdf).