Creative Enzymes®

Native Rabbit Pyruvate Kinase

Cat. No. NATE-0567

Lot. No. (See product label)

Introduction

Description Pyruvate kinase is an enzyme involved in glycolysis. It catalyzes the transfer of a phosphate group from phosphoenolpyruvate (PEP) to ADP, yielding one molecule of pyruvate and one molecule of ATP.

Applications Pyruvate kinase from rabbit muscle has been used in a structural study to understand the reaction mechanism of the final step in glycolysis. It has also been used in a study to investigate ATP-dependent phosphorylation of α-substituted carboxylic acids.

Synonyms Pyruvate kinase; EC 2.7.1.40; 9001-59-6; phosphoenolpyruvate kinase; phosphoenol transphosphorylase; pyruvate kinase (phosphorylating); fluorokinase; fluorokinase (phosphorylating); pyruvic kinase; pyruvate phosphotransferase; ATP:pyruvate 2-O-phosphotransferase

Product Information

Species Rabbit

Source Rabbit muscle

Form Type I, ammonium sulfate suspension, Suspension in 3.2 M (NH4)2SO4 solution, pH 6; Type II, lyophilized powder; Type III, buffered aqueous glycerol solution, Solution in 50% glycerol containing 0.01 M phosphate, pH 7.0.

EC Number EC 2.7.1.40

CAS No. 9001-59-6

Molecular Weight 237 kDa and exists as a tetramer of four equal subunits of molecular weight 57 kDa.

Activity 350-600 units/mg protein

Isoelectric point 7.6

Optimum pH ~7.5

Optimum temperature 25°C

Pathway Adenine ribonucleotide biosynthesis, IMP => ADP,ATP, organism-specific biosystem (from KEGG) Adenine ribonucleotide biosynthesis, IMP => ADP,ATP, conserved biosystem (from KEGG) Biosynthesis of amino acids, organism-specific biosystem (from KEGG) Biosynthesis of amino acids, conserved biosystem (from KEGG) Carbon metabolism, organism-specific biosystem (from KEGG) Carbon metabolism, conserved biosystem (from KEGG) Central carbon metabolism in cancer, organism-specific biosystem (from KEGG) Central carbon metabolism in cancer, conserved biosystem (from KEGG)

Function Mass spectrometry has been used to determine the number of exchangeable backbone amide protons

Function	Mass spectrometry has been used to determine the number of exchangeable backbone amide protons and the associated rate constants that are altered when PKM binds either the allosteric inhibitor phenylalanine or a nonallosteric analogue of the inhibitor. Carboxyl group of the substrate phosphoenolpyruvate is responsible for energetic coupling with phenylalanine binding in the allosteric sites. Bound mono-and divalent cations influence the binding of the substrate phosphoenolpyruvate to pyruvate kinase, in particular the binding-induced structural change of the protein and the conformation and interaction of bound phosphoenolpyruvate. The structure of rabbit muscle pyruvate kinase-Mn-pyruvate-proline complex reported herein demonstrates that proline binds specifically to the allosteric site of muscle pyruvate kinase.
Unit Definition	One unit will convert 1.0 µmole of phospho (enol)pyruvate to pyruvate per min at pH 7.6 at 37°C.

Storage and Shipping Information

Storage	−20°C.