Creative Enzymes®

Native Microorganism Phosphoenolpyruvate carboxylase

Cat. No. DIA-212

Lot. No. (See product label)

Introduction

Description	Phosphoenolpyruvate carboxylase is an enzyme in the family of carboxy-lyases found in plants and some bacteria that catalyzes the addition of bicarbonate (HCO_3^-) to phosphoenolpyruvate (PEP) to form the four-carbon compound oxaloacetate and inorganic phosphate: PEP + HCO_3^- → oxaloacetate + Pi. This reaction is used for carbon fixation in CAM (crassulacean acid metabolism) and C4 organisms, as well as to regulate flux through the citric acid cycle (also known as Krebs or TCA cycle) in bacteria and plants. The enzyme structure and its two step catalytic, irreversible mechanism have been well studied. PEP carboxylase is highly regulated, both by phosphorylation and allostery.
Applications	This enzyme is useful for enzymatic determination of carbon dioxide when coupled with malate dehydrogenase in clinical analysis.
Synonyms	PEP carboxylase; PEPCase; PEPC; EC 4.1.1.31; Phosphoenolpyruvate carboxylase; PDB ID: 3ZGE

Product Information

Source	Microorganism
Appearance	White amorphous powder, lyophilized
EC Number	EC 4.1.1.31
CAS No.	9067-77-0
Molecular Weight	approx. 390 kDa (by gel filtration)
Activity	GradeⅢ 5.0U/mg-solid or more
Contaminants	Lactate dehydrogenase < 1.0×10^{-3}% Pyruvate kinase < 0.5%
Isoelectric point	6.0±0.1
pH Stability	pH 5.0-8.0 (25°C, 24hr)
Optimum pH	7.5-8.0
Thermal stability	below 40°C (pH 7.0, 15min)
Optimum temperature	60°C
Michaelis Constant	1.9×10^{-4}M (Phosphoenolpyruvate)
Structure	4 Subunits (M.W.100,000) per mole of enzyme
Stabilizers	BSA, sugar alcohols

Storage and Shipping Information

Stability	Stable at-20°C for at least one year