

Native Microorganism Phosphoenolpyruvate carboxylase

Product Information

Cat#	DIA-212
Similar	PEPC
Source	Microorganism
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: $\text{PEP} + \text{HCO}_3^- \rightarrow \text{oxaloacetate} + \text{Pi}$. This reaction is used for carbon fixation in CAM (crassulacean acid metabolism) and C_4 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.
Activity	Grade III 5.0U/mg-solid or more
CAS No.	9067-77-0
Isoelectric point	6.0 ± 0.1
Synonyms	PEP carboxylase; PEPCase; PEPC; EC 4.1.1.31; Phosphoenolpyruvate carboxylase; PDB ID: 3ZGE
Enzyme Commission Number	EC 4.1.1.31
pH Stability	pH 5.0-8.0 (25°C, 24hr)
Michaelis Constant	$1.9 \times 10^{-5} \text{M}$ (Phosphoenolpyruvate)
Optimum pH	7.5-8.0
Optimum temperature	60°C

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Thermal stability	below 40°C (pH 7.0, 15min)
Stability	Stable at -20°C for at least one year
Stabilizers	BSA, sugar alcohols
Contaminants	Lactate dehydrogenase < 1.0×10 ⁻³ % Pyruvate kinase < 0.5%
Abbr	PEPC (Microorganism)
Alias	PEPCase; PEPC
Applications	This enzyme is useful for enzymatic determination of carbon dioxide when coupled with malate dehydrogenase in clinical analysis.
Appearance	White amorphous powder, lyophilized
Structure	4 Subunits (M.W.100,000) per mole of enzyme
Molecular Weight	approx. 390 kDa (by gel filtration)