

Acid Phosphatase from potato

Product Number: P9730

Storage Temperature: -20 °C

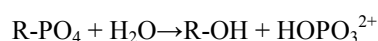
CAS Number: 9001-77-8

EC Number: 3.1.3.2

Synonyms: Apase; Orthophosphoric-monoester phosphohydrolase (acid optimum)

Product Description

Acid phosphatases (APase) are a family of enzymes that non-specifically catalyze the hydrolysis of monoesters and anhydrides of phosphoric acid to produce inorganic phosphate at an optimum pH of 4 to 7 by the following reaction:



Their function in the production, transport, and recycling of phosphate is critical for the metabolic and energy transduction processes of the cell. As a group, APases may be as important as kinases in regulatory processes.

Plant APases have been localized in the cytosol, vacuoles, and cell walls. One key role is phosphate acquisition to mobilize organic phosphates in the soil. Phosphate starvation also induces APase generation.

Potato tuber APase is a monomeric glycoprotein. The carbohydrate component makes up 16.6% of the molecular mass.

Molecular mass: 69 kDa

Carbohydrate residues (%): Mannose 5.0, Glucosamine 3.6, Rhamnose 3.4, Glucose 2.5, Galactose 1.5

pH Optimum: 5.0–5.3

pH Range: 4–7

Temperature optimum: 37 °C

Substrates: α -glycerylphosphate; ATP, fructose-6-phosphate, fructose-6-phosphate, inorganic pyrophosphate, glucose-6-phosphate, p-nitrophenyl phosphate

K_M (mM): p-nitrophenyl phosphate 1.25, inorganic pyrophosphate 40.0

Activators: Cu^{2+} , Mg^{2+} , Mn^{2+} , Zn^{2+} , Hg^{2+} (below 0.4 mM)

Inhibitors: Al^{3+} , Hg^{2+} (above 0.4 mM), MoO_4^{2-} , Zn^{2+} , urea

This product is partially purified from potato tubers and is supplied as a lyophilized powder.

Specific activity: 0.5–3.0 units/mg solid

Unit definition: One unit will hydrolyze 1.0 μmole of p-nitrophenyl phosphate per minute at pH 4.8 at 37 °C.

APase is assayed spectrophotometrically in a 1.1 ml reaction mixture containing 41 mM citrate buffer, pH 4.8 at 37 °C, 6.9 mM p-nitrophenyl phosphate, and 0.015–0.025 unit APase.

Preparation Instructions

APase is soluble in cold water (0.15–0.25 unit/ml). Prepare solution immediately before use.

Storage/Stability

Store the product at -20 °C. When stored at -20 °C, the enzyme retains activity for at least one year.

APase can lose half its activity after 30 minutes at 60 °C and 100% of its activity after two hours at 70 °C.

Precautions and Disclaimer

For Laboratory Use Only. Not for drug, household or other uses.