Native Bovine Alkaline Phosphatase

Cat. No. NATE-0053

Lot. No. (See product label)

Introduction

Description Alkaline phosphatase (ALP, ALKP, ALPase, Alk Phos) (EC 3.1.3.1) is a hydrolase enzyme responsible for removing phosphate groups from many types of molecules, including nucleotides, proteins, and alkaloids. The process of removing the phosphate group is called dephosphorylation. As the name suggests, alkaline phosphatases are most effective in an alkaline environment. It is sometimes used synonymously as basic phosphatase.

Applications Alkaline phosphatase can be used to dephosphorylate casein and other proteins. Alkaline phosphatase may be also be used to dephosphorylate the 5′-termini of DNA or RNA to prevent self-ligation. DNA or RNA can also be tagged with radiolabeled phosphate (via T4 polynucleotide kinase) after dephosphorylation with alkaline phosphatase. Alkaline phosphatase is used for conjugation to antibodies and other proteins for ELISA, Western blotting, and hist ochemical detection. It is routinely used to dephosphorylate proteins and nucleic acids. It may be used for protein labeling when high sensitivity is required. Alkaline phosphatase may be also be used to dephosphorylate the 5′-termini of DNA or RNA to prevent self-ligation. DNA or RNA can also be tagged with radiolabeled phosphate (via T4 polynucleotide kinase) after dephosphorylation with alkaline phosphatase. This product has been used to study the mon oclonal alkaline phosphatase-anti-alkaline phosphatase (APAAP) complex. High specific activity grade recommended for antibody and protein conjugation.

Synonyms Alkaline phosphatase; ALP; ALKP; ALPase; Alk Phos; EC 3.1.3.1; Alkaline phosphomonoesterase; Glycerophosphatase; Phosphomonoesterase

Product Information

Species Bovine

Source Bovine intestinal mucosa

Form Type I, lyophilized powder; Type II, aqueous solution, solution in 3.2 M ammonium sulfate, 1 mM $MgCl_2$ and 0.1 mM $ZnCl_2$, pH 7.0; Type III, buffered aqueous solution, Solution in 3.0 M NaCl containing 5 mM $MgCl_2$, 0.2 mM $ZnCl_2$, and 30 mM triethanolamine, pH 7.6; Type IV, Type V, Type VI, buffered aqueous glycerol solution, Solution in 50% glycerol containing 5 mM Tris, 5 mM $MgCl_2$ and 0.1 mM $ZnCl_2$, pH 7.0.

EC Number EC 3.1.3.1

CAS No. 9001-78-9

Molecular Weight dimer mol wt ~160 kDa

Activity Type I, > 10 DEA units/mg solid; Type II, > 2 ,000 DEA units/mg protein; Type III, 2 ,000-4 ,000 DEA units/mg protein; Type IV, > 5,500 DEA units/mg protein; Type V, > 6,500 DEA units/mg protein; Type VI, > 4 ,000 DEA units/mg protein.

Pathway Endochondral Ossification, organism-specific biosystem (from WikiPathways) Folate biosynthesis, organism-specific biosystem (from KEGG) Folate biosynthesis, conserved biosystem (from KEGG) Metabolic pathways, organism-specific biosystem (from KEGG) TNF-alpha NF-kB Signaling Pathway, organism-specific biosystem (from WikiPathways)

Function The peri-partum characteristics of serum bone-specific alkaline phosphatase (BAP) and urinary

Function	The peri-partum characteristics of serum bone specific alkaline phosphatase (BAP) and urinary deoxypyridinoline (DPD) in dairy cattle are reported. Results indicate that the presence of glycosylphosphatidylinositol increases the stability of alkaline phosphatase against chemical denaturation while it decreases its refolding yield by the artificial chaperone refolding technique. Reliable and reproducible estimates of k (cat) and K (m) from only two or three progress curves were obtained using alkaline phosphatase. GPI-anchored proteins are localized on the outer layer of plasma membranes and clustered in microdomains generally called lipid rafts.
Unit Definition	One DEA unit will hydrolyze 1 μmole of 4-nitrophenyl phosphate per minute at pH 9.8 at 37°C. (One glycine unit is equivalent to ~3 DEA units)

Storage and Shipping Information

Storage	2-8°C