

Native *Bacillus stearothermophilus* Acetate Kinase

Cat. No. NATE-0016

Lot. No. (See product label)

Introduction

Description In molecular biology, acetate kinase (EC 2.7.2.1), which is predominantly found in micro-organisms, facilitates the production of acetyl-CoA by phosphorylating acetate in the presence of ATP and a divalent cation. Short-chain fatty acids (SCFAs) play a major role in carbon cycle and can be utilized as a source of carbon and energy by bacteria. The enzyme is important in the process of glycolysis, enzyme levels being increased in the presence of excess glucose. The growth of a bacterial mutant lacking acetate kinase has been shown to be inhibited by glucose, suggesting that the enzyme is involved in excretion of excess carbohydrate. A related enzyme, butyrate kinase, facilitates the formation of butyryl-CoA by phosphorylating butyrate in the presence of ATP to form butyryl phosphate

Applications Acetate kinase is used to phosphorylate acetate to acetyl phosphate. Acetate Kinase from *Bacillus stearothermophilus* has been used to study allosteric activation, [32P]-acetyl phosphate was generated by incubating potassium acetate in the reaction mixture with acetate kinase from Creative Enzymes. This [32P]-acetyl phosphate was used to label *bldM*, *bldM D-54N* or *bldM D-54A* loci during the study of the effect of *bldM* gene on *Streptomyces coelicolor* development.

Synonyms Acetate kinase (phosphorylating); Acetic kinase; Acetokinase; EC 2.7.2.1; 9027-42-3; Acetate kinase

Product Information

Source *Bacillus stearothermophilus*

Form Lyophilized powder. Contains potassium phosphate buffer

EC Number EC 2.7.2.1

CAS No. 9027-42-3

Activity 400-1,200 units/mg solid

Unit Definition One unit will phosphorylate 1.0 μ mole of acetate to acetyl phosphate per min at pH 7.2 at 30°C.

Storage and Shipping Information

Storage 2-8°C