

## Native *Saccharomyces cerevisiae* Adenosine-5'-triphosphate Sulfurylase

Cat. No. NATE-0090

Lot. No. (See product label)

### Introduction

**Description** In enzymology, a sulfate adenylyltransferase (EC 2.7.7.4) is an enzyme that catalyzes the chemical reaction:  $\text{ATP} + \text{sulfate} \leftrightarrow \text{diphosphate} + \text{adenylyl sulfate}$ . Thus, the two substrates of this enzyme are ATP and sulfate, whereas its two products are diphosphate and adenylyl sulfate. This enzyme belongs to the family of transferases, specifically those transferring phosphorus-containing nucleotide groups (nucleotidyltransferases). This enzyme participates in 3 metabolic pathways: purine metabolism, selenoamino acid metabolism, and sulfur metabolism.

**Applications** Adenosine-5'-triphosphate sulfurylase (ATP sulfurylase) may be used to study sulfur metabolism and hydrogen sulfide biosynthesis. ATP sulfurylase is also used in pyrosequencing. The enzyme has been used along with luciferase in a bioluminescent assay for inorganic sulfate quantitation in freshwater. Inorganic sulfate is converted, by ATP sulfurylase, into adenosine-5'-phosphosulfate and inorganic pyrophosphate, with consumption of ATP. The remaining ATP is used as a co-factor in the reaction catalyzed by firefly luciferase, generating photons of visible light as a co-product. The light output is inversely proportional to the content of inorganic sulfate.

**Synonyms** ATP-sulfurylase; adenosine-5'-triphosphate sulfurylase; adenosinetriphosphate sulfurylase; adenylylsulfate pyrophosphorylase; ATP sulfurylase; sulfurylase; EC 2.7.7.4; 9012-39-9; Sulfate adenylyltransferase

### Product Information

**Source** *Saccharomyces cerevisiae*

**Form** lyophilized powder. Contains Citrate buffer salts

**EC Number** EC 2.7.7.4

**CAS No.** 9012-39-9

**Activity** > 1.0 units/mg protein

**Unit Definition** One unit will produce 1.0  $\mu\text{mole}$  of ATP from APS and inorganic pyrophosphate per min at pH 8.0 at 30°C.

### Storage and Shipping Information

**Storage** -20°C