

## cob(I)yrinic acid a,c-diamide adenosyltransferase

Cat. No. EXWM-2753

Lot. No. (See product label)

### Introduction

**Description** The corrinoid adenosylation pathway comprises three steps: (i) reduction of Co(III) to Co(II) by a one-electron transfer. This can be carried out by EC 1.16.1.3, aquacobalamin reductase or non-enzymically in the presence of dihydroflavin nucleotides. (ii) Co(II) is reduced to Co(I) in a second single-electron transfer by EC 1.16.1.4, cob(II)alamin reductase and (iii) the Co(I) conducts a nucleophilic attack on the adenosyl moiety of ATP to leave the cobalt atom in a Co(III) state (EC 2.5.1.17). The enzyme responsible for the adenosylation reaction is the product of the gene cobO in the aerobic bacterium *Pseudomonas denitrificans* and of the gene cobA in the anaerobic bacterium *Salmonella typhimurium*. In *P. denitrificans*, the enzyme shows specificity for cobyrinic acid a,c-diamide and the corrinoids that occur later in the biosynthetic pathway whereas CobA seems to have broader specificity. While CobA has a preference for ATP and  $Mn^{2+}$ , it is able to transfer a variety of nucleosides to the cobalt, including CTP, UTP and GTP, in decreasing order of preference and to use  $Mg^{2+}$  instead of  $Mn^{2+}$ .

**Synonyms** CobA; CobO; ATP:corrinoid adenosyltransferase; cob(I)alamin adenosyltransferase; aquacob(I)alamin adenosyltransferase; aquocob(I)alamin vitamin B12s adenosyltransferase; ATP:cob(I)alamin Co $\beta$ -adenosyltransferase

### Product Information

**Form** Liquid or lyophilized powder

**EC Number** EC 2.5.1.17

**CAS No.** 37277-84-2

**Reaction** (1) ATP + cob(I)yrinic acid a,c-diamide = triphosphate + adenosylcob(III)yrinic acid a,c-diamide; (2) ATP + cobinamide = triphosphate + adenosylcobinamide

**Notes** This item requires custom production and lead time is between 5-9 weeks. We can custom produce according to your specifications.

### Storage and Shipping Information

**Storage** Store it at +4 °C for short term. For long term storage, store it at -20 °C~-80 °C.