

RNA ligase (ATP)

Cat. No. EXWM-5822

Lot. No. (See product label)

Introduction

Description The enzyme catalyses the ligation of RNA strands with 3'-hydroxyl and 5'-phosphate termini, forming a phosphodiester and sealing certain types of single-strand breaks in RNA. Catalysis occurs by a three-step mechanism, starting with the activation of the enzyme by ATP, forming a phosphoramidate bond between adenylyl and a lysine residue. The adenylyl group is then transferred to the 5'-phosphate terminus of the substrate, forming the capped structure 5'-(5'-diphosphoadenosine)-[RNA]. Finally, the enzyme catalyses a nucleophilic attack of the 3'-OH terminus on the capped terminus, which results in formation of the phosphodiester bond and release of the adenylyl.

Synonyms polyribonucleotide synthase (ATP); RNA ligase; polyribonucleotide ligase; ribonucleic ligase; poly(ribonucleotide):poly(ribonucleotide) ligase (AMP-forming)

Product Information

Form Liquid or lyophilized powder

EC Number EC 6.5.1.3

CAS No. 37353-39-2

Reaction $\text{ATP} + (\text{ribonucleotide})_n\text{-3'-hydroxyl} + 5'\text{-phospho-(ribonucleotide)}_m = (\text{ribonucleotide})_{n+m} + \text{AMP} + \text{diphosphate}$ (overall reaction); (1a) $\text{ATP} + [\text{RNA ligase}]\text{-L-lysine} = [\text{RNA ligase}]\text{-N6-(5'-adenylyl)-L-lysine} + \text{diphosphate}$; (1b) $[\text{RNA ligase}]\text{-N6-(5'-adenylyl)-L-lysine} + 5'\text{-phospho-(ribonucleotide)}_m = 5'\text{-(5'-diphosphoadenosine)-(ribonucleotide)}_m + [\text{RNA ligase}]\text{-L-lysine}$; (1c) $(\text{ribonucleotide})_n\text{-3'-hydroxyl} + 5'\text{-(5'-diphosphoadenosine)-(ribonucleotide)}_m = (\text{ribonucleotide})_{n+m} + \text{AMP}$

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.