Creative Enzymes®

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 phosphoramide bond between adenylate and a lysine residue. The adenylate 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 adenylate.

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 ATP + (ribonucleotide)n-3'-hydroxyl + 5'-phospho-(ribonucleotide)m = (ribonucleotide)n+m + AMP + diphosphate (overall reaction); (1a) ATP + [RNA ligase]-L-lysine = [RNA ligase]-N6-(5'-adenylyl)-L-lysine + diphosphate; (1b) [RNA ligase]-N6-(5'-adenylyl)-L-lysine + 5'-phospho-(ribonucleotide)m = 5'-(5'-diphosphoadenosine)-(ribonucleotide)m + [RNA ligase]-L-lysine; (1c) (ribonucleotide)n-3'-hydroxyl + 5'-(5'-diphosphoadenosine)-(ribonucleotide)m = (ribonucleotide)n+m + 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 ℃ for short term. For long term storage, store it at -20 ℃~-80 ℃.