

Product Components

Components	Component number	Size-1 1,000 U	Size -2 5,000 U
Circle Ligase	RM21506	10 µL	50 µL
10X Circle Ligase Reaction Buffer	RM20155	50 µL	150 µL
ATP (1 mM)	RM20156	20 µL	75 µL
MnCl ₂ (50 mM)	RM20157	20 µL	75 µL
Nuclease-free H ₂ O	RM20214	500 µL	1.25 mL

Product Description

Circle Ligase is a thermostable ATP-dependent ligase that catalyzes intramolecular ligation of single-stranded DNA (ssDNA) and single-stranded RNA (ssRNA) substrates, which must simultaneously possess 5'-monophosphate and 3'-hydroxyl groups. Linear ssDNA and ssRNA with more than 15 nucleotides can be cyclized by this enzyme. This enzyme can be used for the production of single-stranded DNA templates for rolling circle replication or rolling circle transcription experiments.

Product Source

An *E. coli* strain that carries a plasmid encoding the engineered *Circle Ligase* gene.

Unit Definition

One unit (U) refers to the amount of enzyme capable of converting 1 pmol of linear 5'-phosphorylated standard 55-mer oligonucleotide into a circular form resistant to exonuclease I under standard reaction conditions at 60°C for 1 hour.

Storage Buffer

50 mM Tris-HCl (pH 7.5), 100 mM NaCl, 0.1 mM EDTA, 1 mM DTT, 0.1% Triton X-100, 50% Glycerol.

Storage Temperature

-20°C.

Reaction Conditions

1X Circle Ligase Reaction Buffer, Incubate at 60°C.

The 1X Circle Ligase Reaction Buffer does not contain ATP and MnCl₂. They need to be added separately to the reaction system, reaching final concentrations of 0.05 mM ATP and 2.5 mM MnCl₂.

1X Circle Ligase Reaction Buffer

50 mM MOPS (pH 7.5), 10 mM KCl, 5 mM MgCl₂, 1 mM DTT.

Heat Inactivation

85°C for 10 minutes.