

Lambda Exonuclease Instruction Manual

【Product Name】

Lambda Exonuclease

【Catalog Number】

EDE0003

【Package Specification】

1kU

【Product Description】

Lambda Exonuclease is purified from *E. coli* strains overexpressing the Lambda phage exonuclease gene. Lambda Exonuclease is a highly processive nuclease that acts on double-stranded DNA, progressively removing 5' mononucleotides in the 5'→3' direction. Its optimal substrate is 5'-phosphorylated double-stranded DNA, though it can also slowly degrade single-stranded DNA and non-phosphorylated substrates. The enzyme cannot initiate digestion from nicks or gaps in DNA.

【Applications】

- (1) Efficient 5'→3' exonuclease activity.
- (2) Removal of 5' mononucleotides from double-stranded DNA.

【Components】

Component	Volume
Lambda Exonuclease	200 μl
Lambda Exonuclease 10 × Buffer	1 mL

【Usage Recommendations】

- (1) Optimal temperature: 37°C;
- (2) Optimal pH: 8.0.

【Storage Conditions and Shelf Life】

Shelf life: 1 year. Store at -20°C.

For long-term storage, keep at -80°C.

It is recommended to aliquot the enzyme based on usage frequency to avoid repeated freeze-thaw cycles.

【Quality Assurance】

Lambda Exonuclease undergoes multiple chromatography purification steps, with SDS-PAGE analysis demonstrating a single, distinct target band and a purity of 90%. PCR analysis verifies the absence of residual *E. coli* DNA and confirms no contamination by endonuclease or exonuclease activity.

【Activity Definition】

One unit is defined as the amount of enzyme required to catalyze the release of 10 nmol of acid-soluble deoxyribonucleotides from a double-stranded DNA substrate in a 50 μL reaction system at 37°C within 30 minutes.

【Storage Solution】

25 mM Tris-HCl, 50 mM NaCl, 1 mM DTT, 0.1 mM EDTA, 50% Glycerol, pH 8.0, 25°C.

【Heat Inactivation】

75°C, 10 min.

【Precautions】

- (1) The cleavage rate at 5'-OH ends is 20 times slower than at 5'-PO₄ ends.
- (2) The cleavage rate for single-stranded DNA is 100 times slower than for double-stranded DNA.