

# Lambda Exonuclease

Cat. Nos. LE035H and LE032K

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## 1. Introduction

Lambda Exonuclease is a highly processive 5'→3' exodeoxyribonuclease that selectively digests the phosphorylated strand(s) of double-stranded DNA (dsDNA). The preferred substrate is a blunt-ended, 5'-phosphorylated dsDNA. The enzyme has greatly reduced activity on single-stranded DNA and non-phosphorylated DNA and no activity against nicked DNA and gapped DNA.<sup>1,2</sup> Lambda Exonuclease is provided at a concentration of 10 Units/μl.

## 2. Applications

Generation of single-stranded PCR products for use in:

- DNA Sequencing.<sup>3</sup>
- SSCP (single-strand conformation polymorphism) Analysis.<sup>4,5</sup>

Single-stranded PCR products are produced by first performing PCR where only one of the two primers contains a 5'-phosphate. Following PCR amplification, the phosphorylated strand of the PCR product is removed by digestion with lambda exonuclease (Fig. 1).

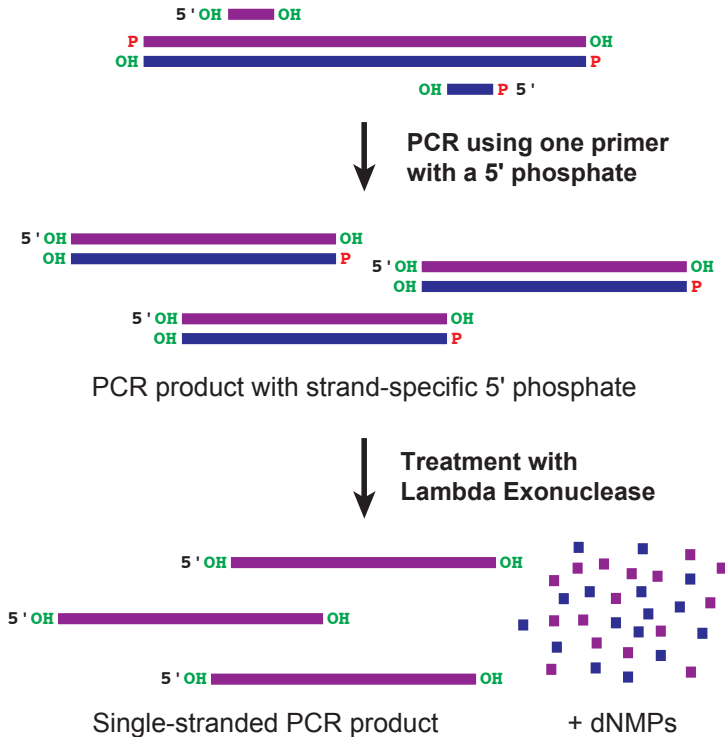


Figure 1. Production of single-stranded PCR products with lambda exonuclease.

### 3. Product Specifications

**Storage:** Store only at  $-20^{\circ}\text{C}$  in a freezer without a defrost cycle.

**Storage Buffer:** Lambda Exonuclease is supplied in a 50% glycerol solution containing 50 mM Tris-HCl (pH 7.5), 100 mM NaCl, 1.0 mM dithiothreitol, 0.1 mM EDTA, and 0.1% Triton® X-100.

**Unit Definition:** One unit of Lambda Exonuclease results in the acid-solubilization of 10 nmol of deoxyribonucleotides from a dsDNA template in 30 minutes at  $37^{\circ}\text{C}$  in 1X Lambda Exonuclease Reaction Buffer.

**Quality Control:** Lambda Exonuclease is function-tested by assaying the digestion of double-stranded PCR products which are a) non-phosphorylated, b) phosphorylated on the “forward strand” only, c) phosphorylated on the “reverse strand” only, and d) completely phosphorylated.

**10X Lambda Exonuclease Reaction Buffer:** 670 mM Glycine-KOH (pH 9.4), 25 mM  $\text{MgCl}_2$ , and 0.1% Triton X-100.

### 4. Related Products

The following products are also available:

- Exonuclease I
- Exonuclease III
- RNase-Free DNase I
- Mung Bean Nuclease
- OmniCleave™ Endonuclease
- Plasmid-Safe™ ATP-Dependent DNase

### 5. References

1. Little, J.W. *et al.*, (1967) *J. Biol. Chem.* **242**, 679.
2. Little, J.W. *et al.*, *Gene Amplification and Analysis* **v. 2**, 135, Elsevier, New York.
3. Higuchi, R.G. and Ochman, H. (1989) *Nucl. Acids Res.* **17**, 5865.
4. Schwieger, F. and Tebbe, C.C. (1998) *App. and Environ. Microb.* **64** (12), 4870.
5. Schwieger, F. and Tebbe, C.C. (2000) *App. and Environ. Microb.* **66** (8), 3556.

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