

CERTIFICATE OF ANALYSIS

# Lambda Exonuclease

**#EN0561** 1000u

**Lot:**                   **Quality guaranteed:**

Concentration: 10u/μl

Supplied with: 1ml of 10X Reaction Buffer

**Store at -20°C**

2

In total 2 vials.

## **Description**

Lambda Exonuclease is highly processive 5'→3' exodeoxyribonuclease. It selectively digests the phosphorylated strand of double-stranded DNA. The enzyme exhibits greatly reduced activity on single-stranded DNA and non-phosphorylated DNA, and has no activity at nicks and limited activity at gaps in DNA (1, 2).

## **Source**

*E.coli* cells carrying a cloned *exo* gene of phage lambda.

## **Unit Definition**

One unit of the enzyme catalyzes the release of 10 nanomoles of acid-soluble reaction products from double-stranded substrate in 30min at 37°C.

## **Activity Assay**

67mM glycine-KOH (pH 9.4), 2.5mM MgCl<sub>2</sub>, 0.01% Triton X-100 and 20μg/ml *E.coli* [<sup>3</sup>H]-DNA.

## **Storage Buffer**

25mM Tris-HCl (pH 8.0), 0.1mM EDTA, 1mM DTT, 50mM NaCl, 0.1% Triton X-100 and 50% glycerol.

## **10X Reaction Buffer**

670mM glycine-KOH (pH 9.4 at 25°C), 25mM MgCl<sub>2</sub>, 0.1% Triton X-100.

## ***Applications***

- Generating single-stranded PCR products for use in:
  - DNA sequencing (3);
  - analysis of DNA single-strand conformation polymorphism (SSCP) (4).
- Producing single-stranded DNA from double-stranded DNA fragments.

## ***Inactivation***

By heating at 80°C for 15min.

## ***Reaction Conditions*** (5)

For 50µl reaction mixture:

10X Reaction Buffer	5µl
DNA	2µg
Lambda Exonuclease	10u

Incubate at 37°C for 1 to 30min, depending upon extent of digestion required. Stop reaction by the addition 2µl of 0.5M EDTA or by heating at 80°C for 10min.

## ***Notice***

Use of this enzyme in certain applications may be covered by patents and may require a license (5).

## **QUALITY CONTROL ASSAY DATA**

### ***Endodeoxyribonuclease Assay***

No detectable conversion of covalently closed circular DNA to nicked DNA was observed after incubation of 25 units of Lambda Exonuclease with 1µg of  $\Phi$ X174 RF1 DNA in 50µl of buffer (67mM glycine-KOH (pH 9.4), 2.5mM MgCl<sub>2</sub>, 0.01% Triton X-100) for 4 hours at 37°C.

### ***Functional Assay***

Lambda Exonuclease was tested for production of single-stranded DNA from a PCR product prepared using primers one of which is 5'-phosphorylated.

**Quality authorized by:**

 Jurgita Zilinskiene

*(continued on back page)*

## References

1. Little, J.W., An exonuclease induced by bacteriophage  $\lambda$ : II, Nature of the enzymatic reaction, J. Biol. Chem., 242, 679-686, 1967.
2. Mitsis, P.G., Kwagh, J.G., Characterization of the interaction of lambda exonuclease with the ends of DNA, Nucleic Acids Res., 27, 3057-3063, 1999.
3. Higuchi, R.G., Ochman, H., Production of single-stranded DNA templates by exonuclease digestion following the polymerase chain reaction, Nucleic Acids Res., 17, 5865, 1989.
4. Schwieger, F., Tebbe, C.C., A new approach to utilize PCR-single-stranded-conformation polymorphism for 16S rRNA gene-based microbial community analysis, Appl. Environ. Microbiol. 64, 4870-4876, 1998.
5. EPO Patent No 0679190B1.

## **PRODUCT USE LIMITATION.**

This product is developed, designed and sold exclusively *for research purposes and in vitro use only*. The product was not tested for use in diagnostics or for drug development, nor is it suitable for administration to humans or animals.

Please refer to [www.fermentas.com](http://www.fermentas.com) for Material Safety Data Sheet of the product.

## Related Products

- *Taq* DNA polymerase (recombinant) #EP0401  
#EP0402  
#EP0403  
#EP0404
- *Taq* DNA polymerase (native, without BSA) #EP0281  
#EP0282  
#EP0283  
#EP0284
- *Taq* DNA polymerase (native, with BSA) #EP0071  
#EP0072
- 2X PCR Master Mix #K0171
- Water, nuclease-free #R0581  
#R0582