

# Completely Remove Oligonucleotides and Single-Stranded DNA From Your Reaction Mixes Using Exonuclease I

Exonuclease I specifically digests single-stranded DNA, containing a 3'-OH, in a 3'→5' direction. Although the enzyme requires Mg<sup>2+</sup> for activity, it is active in a wide variety of buffers and can be added directly into most reaction mixes. Exonuclease I can be heat inactivated by incubation at 80°C for 15 minutes.

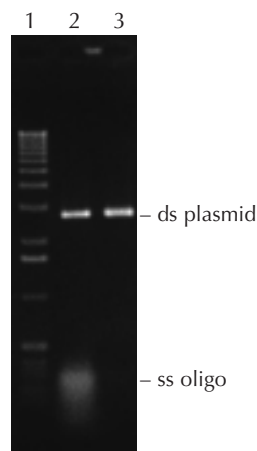
## Applications

Removal of residual single-stranded DNA and oligonucleotides from reaction mixes.

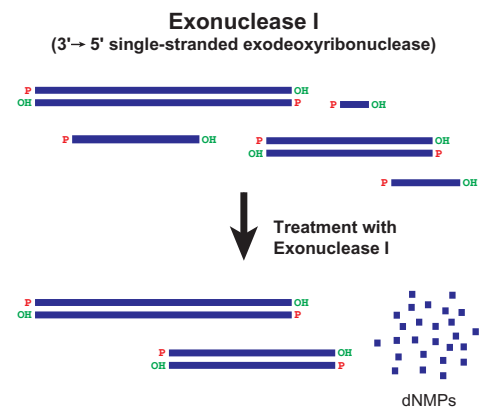
Selective removal of single-stranded DNA from nucleic acid mixtures.

## Quality Control

Exonuclease I is tested for selective degradation of single-stranded DNA and is free of detectable RNase, endonuclease and double-stranded exonuclease activities.



**Figure 1. Specificity of Exonuclease I for single-stranded substrates.** 200 ng of pUC19 DNA linearized with EcoR I and 1 µg of a 100-mer single-stranded oligonucleotide were mixed in 1X TA Buffer (33 mM Tris-acetate, pH 7.8, 66 mM potassium acetate, 10 mM magnesium acetate, and 0.5 mM DTT) and incubated at 37°C for 20 minutes in the absence or presence of 10 U of Exonuclease I (Exo I). Reaction products were separated by electrophoresis on a 1% agarose gel. Lane 1, molecular weight markers; Lane 2, minus Exo I treatment; Lane 3, plus Exo I treatment. Exonuclease I completely digested the linear single-stranded oligonucleotide while leaving the linear double-stranded plasmid DNA intact.



**Figure 2. Exonuclease I selectively digests single-stranded DNA with a 3'-OH in a 3'→5' direction.** Exonuclease I can be used to completely remove oligonucleotides and single-strand DNA from reaction mixes and nucleic acid preparations.

### Exonuclease I, *E. coli*

X40501K	20 U/µl	1,000 U
X40505K	20 U/µl	5,000 U
X40520K	20 U/µl	20,000 U

Exonuclease I is also available in bulk. Please inquire.

**NEW  
PRODUCT!**

## Produce Single-Stranded PCR Product for SSCP or Sequencing Using Lambda Exonuclease

Lambda Exonuclease is a highly processive 5'→3' exodeoxyribonuclease that selectively digests the phosphorylated strand of double-stranded DNA. The preferred substrate is blunt-ended, 5'-phosphorylated double-stranded-DNA. The enzyme has reduced activity against nicked DNA and against single-stranded DNA and gapped DNA<sup>1</sup>.

## Applications

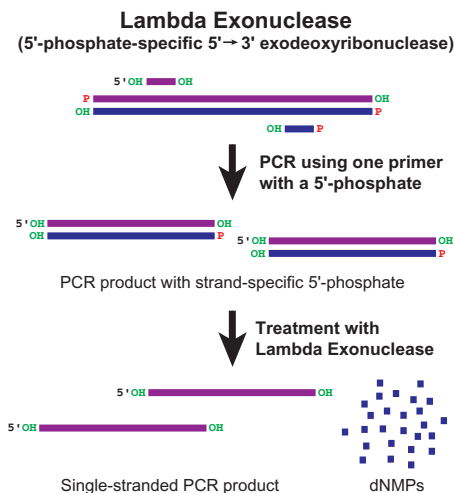
SSCP (single-strand conformation polymorphism) analysis of PCR product<sup>2,3</sup>.

Generate single-stranded DNA sequencing template from PCR product.

**Unit Definition:** One unit will produce 10 nmoles of acid soluble deoxyribonucleotides from double-stranded DNA template in 30 minutes at 37°C in 1X Lambda Exonuclease Reaction Buffer.

**Quality Control:** Lambda Exonuclease is function-tested to ensure complete and preferential degradation of PCR product produced using 5'-phosphorylated primers. PCR product made using primers

containing 5'-OH ends is not digested. Lambda Exonuclease is tested to be free of contaminating endonuclease activities.



**Figure:** Lambda Exonuclease selectively digests the strand of a PCR product produced using a PCR primer with a 5'-phosphate. The resulting single-strand PCR product can be used for SSCP analysis or sequencing.

## References

- Mitsis, P.G. and Kwagh, J.G. (1999), *Nucl. Acid. Res.* **27**(15):3057
- Schwieger, F. and Tebbe, C.C (1998), *App. And Environ. Microb.* **64**(12):4870
- Schwieger, F. and Tebbe, C.C (2000), *App. And Environ. Microb.* **66**(8):3556

### Lambda Exonuclease

LE015H	500 Units	10 U/µl
LE012K	2,500 Units	10 U/µl

Each includes 10X Reaction Buffer  
Lambda Exonuclease is also available in bulk. Please inquire.