

Exo/S1 Kit (Exonuclease III/ S1 Nuclease Kit)

E. coli (ExoIII), *Aspergillus oryzae* (S1 Nuclease), Recombinant, *E. coli*

Cat.-No.	Enzymes	Size/ Conc.
EN-159	Exonuclease III	10,000 U (200 U/μl)
	S1 Nuclease	1,000 U (50 U/μl)

Exonuclease III:

Liquid. Supplied in 50 mM Tris-HCl (pH 7.5), 0.1 M NaCl, 0.1 mM EDTA, 1 mM DTT, 0.1% Triton X-100, 50% glycerol.

S1-Nuclease:

Liquid: Supplied in 20 mM Tris-HCl (pH 7.5), 50 mM NaCl and 0.1 mM ZnCl₂, 50% glycerol.

Exonuclease III (ExoIII) of *E. coli* is a 31 kD monomeric, globular protein combining multiple catalytic activities in one active site. It acts on double-stranded (ds) DNA as a 3'-5' exonuclease, a 3'-phosphomonoesterase, an apurinic/aprimidic (AP) sites specific endonuclease and a exonucleolytic ribonuclease H.

S1 Nuclease is a single-strand specific nuclease, which degrades single-stranded nucleic acids, releasing 5'-phosphoryl mono- or oligonucleotides. The enzyme is five times more active on DNA than on RNA. The enzyme is a glycoprotein with carbohydrate content of about 18%.

Applications:

- Generation of nested deletions for convenient sequencing
- Generation of truncated proteins

AVOID FREEZE/THAW CYCLES.

For in vitro use only!

Purity: > 95% by SDS-PAGE.

Unit definition:

Exonuclease III: One unit of Exonuclease III catalyzes the release of 1 nmole of acid-soluble nucleotides from double stranded calf thymus DNA in 30 minutes at 37 °C in 33 mM Tris-acetate (pH 7.8), 66 mM potassium acetate, 10 mM magnesium acetate and 0.5 mM DTT.

S1-Nuclease: One unit is defined as the amount of enzyme required to produce 1 μg of acid-soluble material per minute at 37°C in 30 mM sodium acetate (pH 4.6 at 25 °C), 50 mM NaCl, 1 mM ZnCl₂, 0.5 mg/ml denatured calf thymus DNA and 5% glycerol.

Store: -20 °C

Selected references:

- Henikoff S. (1984) Unidirectional digestion with exonuclease III creates targeted breakpoints for DNA sequencing. *Gene* **28**:351.
- Guo L.H. and Wu R. (1982) New rapid methods for DNA sequencing based on exonuclease III digestion followed by repair synthesis. *Nucleic Acids Res.* **10**:2065.
- Vandeyar et al. (1988) A simple and rapid method for the selection of oligodeoxynucleotide-directed mutants. *Gene* **65**:129.
- Li C. and Evans R.M. (1997) Ligation independent cloning irrespective of restriction site compatibility. *Nucleic Acids Res.* **25**:4165.
- Berk A.J. and Sharp P.A. (1978) Spliced early mRNAs of simian virus 40. *Proc. Natl. Acad. Sci. USA.* **75**:1274.