

# Mung Bean Nuclease



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M0250S 024121114111

## M0250S

**1,500 units**    **Lot: 0241211**    **Exp: 11/14**  
**10,000 U/ml**    **Store at -20°C**

**Description:** A single-strand specific DNA and RNA endonuclease which will degrade single-stranded extensions from the ends of DNA and RNA molecules, leaving blunt, ligatable ends.

**Source:** Mung bean sprouts

**Molecular Weight:** 39 kDa

Supplied in: 10 mM sodium acetate (pH 5.0)  
0.1 mM zinc acetate, 1 mM cysteine, 0.001%  
Triton X-100 and 50% glycerol.

### Applications:

- Removal of 3' and 5' extensions from DNA or RNA termini
- Transcriptional mapping
- Cleavage of hairpin loops
- Excision of gene coding sequences from genomic DNA
- Generation of new restriction sites

**Note:** It is no longer necessary to supplement Mung Bean Nuclease reactions with Zn<sup>2+</sup>. The zinc acetate in the storage buffer fulfills the Zn<sup>2+</sup> requirement of the enzyme even after dilution in a reaction.

### Reagents Supplied with Enzyme:

10X Mung Bean Nuclease Reaction Buffer

**Reaction Conditions:** Substrate DNA at a concentration of 0.1 µg/µl in 1X Mung Bean Nuclease Reaction Buffer.

**Incubate at 30°C.**

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### 1X Mung Bean Nuclease Reaction Buffer:

50 mM sodium acetate  
30 mM NaCl  
1 mM ZnSO<sub>4</sub>  
pH 5.0 @ 25°C

Also active in NEBuffers 1, 2 & 4.

**Unit Definition:** One unit is defined as the amount of enzyme required to produce 1 µg of acid-soluble total nucleotide in 1 minute at 37°C.

**Unit Assay Conditions:** 1X Mung Bean Nuclease Reaction Buffer and 0.5 mg/ml denatured calf thymus DNA as an enzyme substrate.

### Removal of Single-Stranded Extensions:

1. Suspend DNA (0.1 µg/µl) in 1X Mung Bean Nuclease Reaction Buffer or 1X NEBuffers 1, 2, or 4.
2. Add 1.0 unit of Mung Bean Nuclease per µg DNA.
3. Incubate at 30°C for 30 minutes.
4. Inactivate the enzyme by phenol/chloroform extraction or by addition of SDS to 0.01%.
5. Recover the DNA by ethanol precipitation.

### 1X Mung Bean Nuclease Reaction Buffer:

50 mM sodium acetate  
30 mM NaCl  
1 mM ZnSO<sub>4</sub>  
pH 5.0 @ 25°C

Also active in NEBuffers 1, 2 & 4.

**Unit Definition:** One unit is defined as the amount of enzyme required to produce 1 µg of acid-soluble total nucleotide in 1 minute at 37°C.

**Unit Assay Conditions:** 1X Mung Bean Nuclease Reaction Buffer and 0.5 mg/ml denatured calf thymus DNA as an enzyme substrate.

### Removal of Single-Stranded Extensions:

1. Suspend DNA (0.1 µg/µl) in 1X Mung Bean Nuclease Reaction Buffer or 1X NEBuffers 1, 2, or 4.
2. Add 1.0 unit of Mung Bean Nuclease per µg DNA.
3. Incubate at 30°C for 30 minutes.
4. Inactivate the enzyme by phenol/chloroform extraction or by addition of SDS to 0.01%.
5. Recover the DNA by ethanol precipitation.

**Quality Assurance:** Purified free of double-strand exonuclease contamination.

### Quality Control Assays

16 µg of Hae III digested φX174 DNA was incubated with 10 units of Mung Bean Nuclease in a 400 µl volume of 1X NEBuffer 2 for 30 minutes at 30°C. The DNA was then precipitated, ligated with T4 DNA Ligase and recut. 90% of the DNA fragments treated with Mung Bean Nuclease were ligated and of those 95% were recut with Hae III.

### References:

1. Kowalski, D. et al. (1976) *Biochemistry* 15, 4457-4463.
2. McCutchan, T.F. et al. (1984) *Science* 225, 626-628.

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