Mung Bean Nuclease

**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 Zn²⁺. The zinc acetate in the storage buffer fulfills the Zn²⁺ 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.**

**1X Mung Bean Nuclease Reaction Buffer:**
- 50 mM sodium acetate
- 30 mM NaCl
- 1 mM ZnSO₄
- 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:**