Mung Bean Nuclease

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M0250S

1,500 units Lot: 0251405 Exp: 5/16
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.

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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^{2+}. The zinc acetate in the storage buffer fulfills the Zn^{2+} 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 $ZnS0_4$
pH 5.0 @ 25°C
Also active in NEBuffers 1.1, 2.1 or CutSmart.

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 1.1, 2.1 or CutSmart.
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.

CERTIFICATE OF ANALYSIS