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Benzonase Nuclease

Catalog Number: E109-1, E109-2

Table 1. Kit Components and Storage

Kit Component	E109-1 (25000 units)	E109-2 (100000 units)	Storage	Stability
Benzonase (250 units/µL)	100 µL	400 µL	-20 °C, avoid repeated free-thaw	The product is stable for 12 months when stored as directed.

Product Description

Benzonase Nuclease is a genetically engineered endonuclease from Serratia marcescens. It degrades all forms of DNA and RNA (single stranded, double stranded, linear and circular) while having no proteolytic activity. It is effective over a wide range of conditions and possesses an exceptionally high specific activity. The enzyme completely digests nucleic acids to 5′-monophosphate terminated oligonucleotides 2 to 5 bases in length (below the hybridization limit), which is ideal for removal of nucleic acids from recombinant proteins, enabling compliance with FDA guidelines for nucleic acid contamination. The ability of Benzonase to rapidly hydrolyze nucleic acids makes the enzyme an excellent choice for viscosity reduction to reduce processing time and increase yields of protein.

The enzyme is functional between pH 6 and 10 and from 0- 42°C and requires 1-2 mM Mg^{2+} for activation. The enzyme is also active in the presence of ionic and non-ionic detergents, reducing agents, PMSF (1 mM), EDTA (1 mM) and urea. Activity is inhibited by > 150 mM monovalent cations, > 100 mM phosphate, > 100 mM ammonium sulfate, or > 100 mM guanidine HCl.

The enzyme is available in 25,000 and 100,000 unit sizes at a concentration of 250 U/µL.

Applications

- Removal of nucleic acid contaminants from recombinant protein preparations.
- Viscosity reduction in protein extracts.
- Sample preparation for 2D gel electrophoresis.

Product Specifications

- **Storage Buffer:** 20 mM Tris-HCl (pH 8.0), 20 mM NaCl, 2 mM $MgCl_2$, and 50% (v/v) glycerol.
- **Unit Definition:** One unit of Benzonase Nuclease is defined as the amount of enzyme that causes a ΔA_{260} of 1.0 in 30 min, which corresponds to complete digestion of 37 µg of DNA.