Datasheet for ABIN7211754

Dr. Nuclease

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Overview

Quantity:	100 kU
Target:	Nuclease
Reactivity:	Serratia marcescens
Host:	Escherichia coli (E. coli)
Enzyme Type:	Recombinant
Biological Activity:	Active

Product Details

Purpose:	Recombinant Dr. Nuclease (Benzonase nuclease alternative)
Characteristics:	Similar to MilliporeSigma Benzonase nuclease, a genetically engineered endonuclease from Serratia marcescens, the recombinant Dr. Nuclease degrades all forms of DNA and RNA while having no proteolytic activity. The endonuclease activity is effective over a wide range of conditions and the enzyme possesses an exceptionally high specific activity. Dr. Nuclease is a recombinant endonuclease with no fusion tag and produced in E. coli. Dr. Nuclease acts as an endonuclease that degrades both DNA and RNA in single-stranded, double-stranded, linear, circular, and super-coiled forms. Upon complete digestion, it digests all free nucleic acids present in solution into 5'-monophosphate-ended oligonucleotides which are three to five bases. Dr. Nuclease eliminates DNA/RNA containments in various products with ultra-speed and efficacy. Dr. Nuclease is super-effective to reduce the viscosity of cell paste or lysed solution. With great tolerance to various inhibitors of proteases used in protein purification, Dr. Nuclease reduces cell clumping in seconds, therefore improves the protein purification process and yield.

Product Details

Purity:	95% by SDS-PAGE and 99% by SEC-HPLC
Endotoxin Level:	Less than 0.01 EU/1000 units following 2020 ChP 1143 USP <85>
Biological Activity Comment:	1.1 x 10^6 U/mg.
Unit Definition:	One unit of Dr. Nuclease is defined as the amount of enzyme required to produce a change in absorbance at 260 nm of 1.0 in the time of 30 minutes, under optimum conditions with excess substrate.

Target Details

Target:	Nuclease
Abstract:	Nuclease Products
Molecular Weight:	28 kDa

Application Details

Application Notes:	Dr. Nuclease keeps its endonuclease activity under a wide range of operating conditions, as specified in Table 1 that shows Dr. Nuclease is active in the presence of ionic and non-ionic detergents, urea, and ammonium sulfate. Mg2+: Optimal (1–2 mM), Effective range (1–10 mM) pH : Optimal (8.0–9.2), Effective range (6.0–10.0) Temperature : Optimal (37 °C),Effective range (0–50 °C) Dithiothreitol (DTT): Optimal (0–100 mM),Effective range (>100 mM) 8-Mercaptoethanol: Optimal (0–100 mM), Effective range (>100 mM) Monovalent cation concentration (Na+, K+, etc.): Optimal (0–20 mM), Effective range (0–150 mM) PO43- concentration: Optimal (0–10 mM), Effective range (0–100 mM)
Comment:	Residual protease: No detectable protease activity using casein as substrate. Residual host protein: ≤10 ppm. Sterility: Negative. Residual heavy metal: ≤10 ppm. Mycoplasmda: Negative.
Assay Procedure:	A typical endonuclease reaction can be setup in 50 mM Tris-HCl, pH 8.0, 1 mM MgCl2 for 30 minutes at 37°C. We recommend 50 units for treating 1 mg of total DNA or RNA, or 2000 units for up to 2 L of conditioned media in 30 minutes. For other application, users should optimize

Application Details

	their own conditions.
Restrictions:	For Research Use only

Handling

Format:	Liquid
Concentration:	250 U/µL
Buffer:	0.2 µM filtered solution (250 units/ul) of PBS, pH 7.4, 2 mM MgCl2, 50% glycerol. It does not contain any antimicrobial preservatives or protein stabilizers except glycerol (of synthetic origin).
Storage:	-20 °C
Storage Comment:	4 weeks from date of receipt if stored at 4°C as supplied. 2 years from date of receipt if stored at -20°C as supplied. Note: We do not recommend -70°C.
Expiry Date:	48 months