



DNase I, GMP Grade

Product Number: GMP-DI05

Animal-free

Ampicillin-free

Shipping and Storage

At -20±5°C.

Description

DNase I (Deoxyribonuclease I) was initially isolated from bovine pancreas. It can randomly degrade single stranded or double stranded DNA with equal efficiency, generating oligonucleotides with 5'-P. The bioactivity of DNase I is highly dependent on Ca²⁺, Mg²⁺ or Mn²⁺. In the presence of Mg²⁺, DNase randomly cuts dsDNA; in the presence of Mg²⁺, DNase cleaves both strands of dsDNA at approximately the same site, resulting in a blunt end or a sticky end with 1 or 2 protruding nucleotides.

DNase I is GMP Grade produced in *Pichia pastoris*. Our manufacturing processes are strictly controlled to ensure the end products free from host protein or nucleic acid contaminations and other impurities following the Pharmaceutical Manufacturing Guidelines. We guarantee the manufacturing and quality control comply with GMP regulation for tracking each and every step of the manufacturing process, including raw material sourcing.

This product has completed the DMF record of FDA and passed the HALAL certification.

Quality Elements

Element	Standard
Appearance	Clear and transparent solution
Identification	Positive
Visible Particles	Meet the specification
pH	7.0-8.0
Activity	1.8KU/ml-2.2KU/ml
Purity	≥95%
RNase Residues	The degradation of substrate was ≤10%
Bacterial Endotoxins	< 5EU/ml
Exogenous DNA Residues	≤100pg/mg
Host-cell Protein Residues	≤50ppm
Mycoplasma	Negative
Heavy Metal Residues	≤10ppm

Annotation: ChP refers to the Pharmacopoeia of the People's Republic of China

Complying to following regulations

1. ISO 9001:2015, certified facility.
2. GMP Appendix – Cellular therapeutic product National Medical Products Administration.
3. The Pandect of Genetic Therapeutic Product for Human Chinese Pharmacopoeia Commission.
4. USP Chapter <1043>, Ancillary Materials for Cell, Gene, and Tissue-Engineered Products.
5. USP Chapter <92>, Growth Factors and Cytokines Used in Cell Therapy Manufacturing.
6. Ph. Eur. General Chapter 5.2.12, Raw Materials of Biological Origin for the Production of Cell-based and Gene Therapy Medicinal Products.

Application

1. Synthesis of RNA without any DNA.
2. Remove DNA contamination, gDNA for example, in RNA sample for RT-PCR reaction.

For Research Use Only



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3. Remove DNA template after IVT reaction catalyzed by RNA polymerase.
4. With the presence of Mn^{2+} , fragmentize DNA, generating random DNA fragment library.
5. In Apoptosis TUNEL detection, cleavage of gDNA for positive control.

Definition of the Enzyme Activity

One unit is defined as the amount of enzyme required to completely degrading 1 μ g DNA of BR322 plasmid in 10minute at 37°C in a 50 μ l reaction volume.

Buffer for Storage

10mM Tris-HCl (pH 7.6); 2mM CaCl₂; 0% (v/v) Glycerol.

Inactivation

Adding EDTA by the concentration of 2.5mM, with the temperature higher than 65°C for 10mins.

Product Packaging

Components	Volume
DNase I, GMP Grade	200 μ l
DNase I, GMP Grade	1ml
DNase I, GMP Grade	10ml
DNase I, GMP Grade	50ml

Directions:

Remove DNA template after IVT reaction:

1. Adding 2-4U DNase I, or an optimized quantity, in the reaction system of 1 μ g DNA template.
2. Incubate at 37°C for 15 mins.
3. Add EDTA to reach the final the concentration of 2.5mM and incubate at 65°C for 10mins. To prevent RNA degradation during heating, phenol-chloroform extraction is recommended to remove DNase I, and purify RNA by ethanol precipitation.

Note

1. Optimized pH value: 7.0-8.0
2. Activation ingredients: Mg^{2+} or Mn^{2+} is required for reaching maximum bioactivity
3. Inhibition ingredients: EDTA, EGTA, SDS.
4. Specificity: degradation of dsDNA endonuclease.
5. Keep the vial on ice when being out of storage condition (at -20 \pm 5°C).

Related Products

Product Number	Product Name
GMP-M062	Vaccinia Capping Enzyme, GMP Grade
GMP-T701	T7 RNA Polymerase, GMP Grade
GMP-M072	mRNA Cap 2' O Methyltransferase, GMP Grade
GMP-RI01	RNase Inhibitor, GMP Grade
GMP-M012	Poly(A) Polymerase, GMP Grade
GMP-M036	Pyrophosphatase, Inorganic (yeast), GMP Grade (ppase)
GMP-E131	T7 High Yield RNA Transcription kit, GMP Grade
D1331	dATP 100mM solution
D2331	dGTP 100mM solution

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D3331	dCTP 100mM solution
D4331	dTTP 100mM solution
N5331	N1-Me-Pseudo UTP,100mM Solution
