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Datasheet
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DNase I, RNase-Free

Cat# ER1001 – 1000 U

Storage at -20 ℃ and avoid from frequent temperature changes

INTRODUCTION

DNase I is an endonuclease that degrades both double-stranded and single-stranded DNA, producing 3´-OH oligonucleotides. DNase I is suited for applications such as nick translation, production of random fragments, cleavage of genomic DNA for footprinting, removal of DNA template after *in vitro* transcription, and removal of DNA from RNA samples prior to applications such as RT-PCR. Moreover, RNase-Free DNase I may be used in applications where maintaining the integrity of the RNA is critical. In the presence of Mg^{2+}, DNase I attacks each strand of DNA independently, and the sites of cleavage are distributed in a statistically random fashion. In the presence of Mn^{2+}, DNase I cleaves both strands of DNA at approximately the same site to yield fragments with blunt ends or protruding termini of one or two nucleotides in length.

CONTENTS

No	Component	ER1001 – 1000U
DA	DNase I, RNase-free (Lyophilized)	1 vial
DB	1X Storage Buffer[a]	1.2 ml
DC	10X Reaction Buffer[b]	1 ml
DD	8X Stop Solution[c]	1 ml

a. 1X Storage Buffer: 10 mM HEPES (pH 7.5), 50% glycerol (v/v), 10 mM CaC_2l and 10 mM $MgCl_2$.

b. 10× Reaction Buffer: 400 mM Tris-HCl (pH 8.0), 100 mM $MgSO_4$ and 10 mM $CaCl_2$.

c. 8X Stop Solution: 20 mM EDTA (pH 8.0).

INFORMATION

Inhibitors: EGTA; EDTA; salt concentrations >100mM will reduce DNase activity.

Molecular Weight: 31,000 Daltons.

Requirement: Ca^{2+} and Mg^{2+} or Mn^{2+} .

Source: Bovine pancreas.

UNIT DEFINITION

One unit of RNase-Free DNase is defined as the amount required to completely degrade 1 μg of lambda DNA in 10 minutes at 37℃ in 50μl of a buffer containing 40mM Tris-HCl (pH 7.9), 10mM NaCl, 6mM $MgCl_2$ and 10mM $CaCl_2$. Under these assay conditions one unit of DNase activity is approximately equal to one Kunitz unit.

QUALITY CONTROL

RNase Assay: 50ng of [^{3}H]RNA is incubated with 5 units of RNase-Free DNase I in Transcription Optimized 1× Buffer for 1 hour at 37℃, and the release of radiolabeled nucleotides is monitored by scintillation counting of TCA-soluble material. The minimum passing specification is <3% release.

PROTOCOL

Note: This DNase solution does not contain an RNase inhibitor. Observe caution in handling the product to ensure against contaminating it with RNase.

1. **Preparation**

   Resuspend DNase I in 1 ml Storage Buffer and aliquot into appropriated volume, store at -20℃.

2. **Removal of genomic DNA from RNA**

Mix the component in RNase-free tube	
DNase I, RNase-free (1 U/1 μl)	1 μl
10X Reaction Buffer	5 μl
RNA	Optional
RNase-free ddH_2O	To 50 μl

3. Mix thoroughly and incubate at 37℃ for 10 mins.
4. Add Stop solution to a final 2.5 mM.
5. Heat inactivate at 65℃ for 10 mins.

PRODUCT USE LIMITATION

These products are intended for research use only.