Rev.0

ScienCell™ Research Laboratories

ClearCut DNase (ccDNase)

Catalog #MB6318

Introduction

ClearCut DNase is a recombinant double-stranded DNA-specific endonuclease designed for the rapid removal of contaminating DNA from RNA preparations. The enzyme selectively cleaves phosphodiester bonds within double-stranded DNA, generating short oligonucleotide fragments while preserving RNA and other single-stranded nucleic acids.

Its high specificity for double-stranded DNA enables efficient removal of contaminating DNA, including genomic DNA, PCR products, and plasmid DNA, without compromising RNA integrity. This feature makes ClearCut DNase particularly suitable for RNA purification workflows and downstream applications where residual DNA may interfere with assay sensitivity and data accuracy.

ClearCut DNase can be readily inactivated by incubation at 60°C in the presence of DTT or other reducing agents, eliminating the need for additional cleanup procedures. The enzyme is ideal for use prior to reverse transcription, RT-PCR, RT-qPCR, RNA sequencing, and other RNA-based molecular biology applications.

Kit Components

Cat #	Item	Quantity	Storage
MB6318a	ClearCut DNase	50 µL, 2 Kunitz units/µL	-20°C
MB6318b	10x DNase Enzyme Buffer	100 µL	4°C

Unit Definition

One unit of ClearCut DNase is defined as the amount of enzyme required to increase the absorbance at 260 nm by 0.001 per minute at 25°C and pH 5.0, using salmon sperm DNA as the substrate, according to the Kunitz assay method.

Storage Buffer

ClearCut DNase is supplied in a storage buffer containing 20 mM Tris-HCl (pH 7.5 at 25°C), 2 mM $MgCl_2$, 10 mM NaCl, 0.01% (v/v) Tween 20, and 50% (v/v) glycerol.

Rev.0

Quality Control

RNase activity was evaluated by gel electrophoresis after incubation of 2 µg of total eukaryotic RNA with 2 U of enzyme in a 20 µL reaction volume for 1 hour at 37°C. No detectable RNase activity was observed.

Product Use

ccDNase is for research use only. It is not approved for human or animal use, or for application in clinical or in vitro diagnostic procedures.

DNase activity is sensitive to metal chelating agents, transition metal ions (e.g., Zn^{2+}) at millimolar concentrations, reducing compounds such as DTT, elevated salt concentrations, and trace levels of ionic detergents such as SDS (>0.1%).

Heat inactivation can be achieved by incubation at 60°C for 5 min in the presence of 5 mM DTT.

Shipping and Storage

The product is shipped on ice packs. Upon receipt, store ClearCut DNase (MB6318a) at -20oC in a manual defrost freezer. Store 10x DNase Enzyme Buffer (Cat. No. MB6038b) at 4°C, or alternatively store it at −20°C together with ClearCut DNase.

Application Example

Following in vitro transcription using ScienCell's TranscriEase T7 RNA Synthesis Kit, 1 µL of ClearCut DNase was added directly to the reaction mixture (containing 1 µg DNA template and up to 50 µg RNA product) and incubated at 37°C for 10 minutes. Removal of up to 99 % of template DNA was confirmed by qPCR analysis.