



Murine RNase Inhibitor Instructions

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Catalog Code: MRI-2000
MRI-10000
MRI-20000

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Product Information	
Product name	Murine RNase Inhibitor
Expression system	Escherichia coli
Quality	Recombinant protein
Form	Liquid

Product Introduction

Murine RNase Inhibitor is a recombinant murine-derived RNase inhibitor expressed and purified in E. coli. It exhibits high affinity and binds non-covalently to RNase A, B, or C in a 1:1 ratio, thereby inhibiting the activity of these enzymes and protecting RNA from degradation.

This inhibitor is based on a thermostable RNase inhibitor and retains its inhibitory activity even under high-temperature conditions. Compared to human RNase inhibitors, the murine version lacks two oxidation-sensitive cysteine residues present in the human protein, giving it higher antioxidant activity. This makes it more suitable for experiments sensitive to high concentrations of DTT (such as qPCR).

When used together with various commercial reverse transcriptases (e.g., AMV or M-MLV reverse transcriptase), Taq DNA polymerase, or SP6/T7/T3 RNA polymerases, no inhibition of enzymatic activity has been observed. It can be applied in a variety of reactions to prevent RNA degradation, including RT-PCR, cDNA synthesis, in vitro transcription, enzymatic RNA labeling, and many other applications.

Storage

-20°C. Suggest to aliquot after receiving. Avoid repeated freeze-thaw.

Materials supplied

Cat:	MRI-2000	MRI-10000	MRI-20000
Murine RNase Inhibitor	2000U (40U*50μl)	10000U (40U*250μl)	20000U (40U*500μl)

Unit definition

The amount of enzyme required to inhibit 50% of the activity of 5 ng of RNase A is defined as one activity unit. The activity of RNase A is quantified by measuring the hydrolysis of Cyclic 2',3'-CMP to form 3'-CMP.

Inactivation

Complete inactivation is achieved by heating at 75°C for 10 minutes.

Recommended dosage

- 5~ 10 U/reaction in one-step RT-PCR
- 25 ~ 50 U/reaction in two-step RT-PCR
- 20 U/reaction for in vitro transcription.

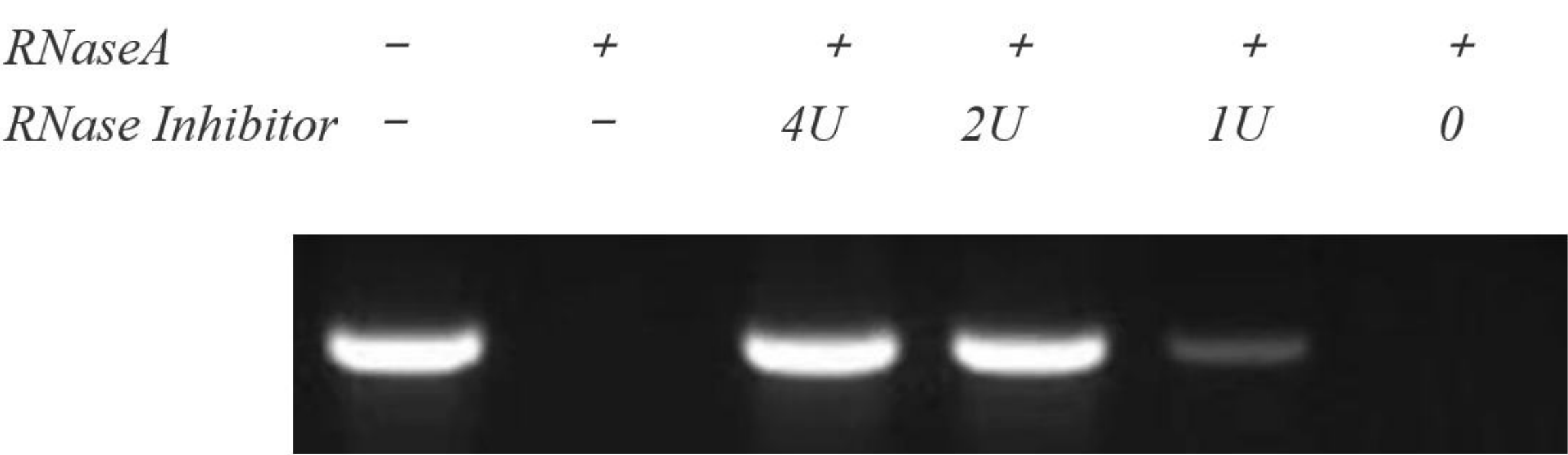


Figure 1. The inhibitory effect of RNase Inhibitor on RNase A activity. In a 100 μ l reaction system (50 mM Tris-HCl, 10 mM MgCl₂, 0.1 mM EDTA, 7 mM DTT; pH 7.5 @ 37°C), 5 μ g of *E. coli* RNA was incubated with 0 or 2 ng of RNase A and 4, 2, 1, or 0 U of RNase Inhibitor at 37°C for 15 minutes. Immediately after the reaction, 20 μ l of the reaction mixture was taken for electrophoresis analysis on a 1% agarose gel.

Attention

- It is recommended to store the product on ice or in an ice bath during use. After use, it should be promptly returned to storage at -20°C.
- The addition of DTT to the enzyme storage solution ensures the long-term stability of the RNase Inhibitor.
- The effective temperature range for the inhibitor's activity is 25°C to 55°C; it becomes inactivated at 65°C and above.
- The inhibitor is active over a broad pH range (pH 5.0 - 9.0) for RNase inhibition, with optimal activity observed between pH 7.0 and 8.0.
- It does not inhibit the activity of RNase H or RNase T1.