

## 1. Introduction

RNase Inhibitor, Murine is a 50 kD recombinant protein isolated from E. coli containing the ribonuclease inhibitor gene originally from mouse. Our product RNase inhibitor has specificity for RNases A, B and C, but couldn't inhibit RNase 1, RNase T1, S1 Nuclease, RNase H or RNase from Aspergillus. It can bind several kinds of RNase non-covalently in a 1:1 ratio with high affinity. Especially, according to previous researches, no inhibition for enzyme activity is observed when RNase Inhibitor is used within AMV or M-MuLV reverse transcriptases, taq DNA polymerase or SP6/T7/ T3 RNA polymerases, means it can be taken in various experiments to prevent RNA degradation.

Compared to RNase from human, RNase inhibitor from mouse lacks the pair of cysteines which is very sensitive to oxidation and lead to inactivation of the inhibitor. As a consequence, RNase Inhibitor, Murine significantly improves its resistance to oxidation compared to RNase inhibitors from human/porcine. It is stable at low DTT concentrations (less than 1 mM), and this character makes it preferred for reactions where low concentration DTT is necessary to the reaction (eg. Real-time RT-PCR).

Our product can be used in many kinds of reactions to prevent RNA degradation, for example, RT-PCR, cDNA synthesis, In vitro transcription, enzymatic RNA labeling reaction or any other applications.

## 2. Used in IVT(In vitro translation), RT-PCR, cDNA synthesis and other application

Add RNase Inhibitor, Murine to achieve a final concentration of 1U/ $\mu$ l in the reaction.

Be careful that RNase Inhibitor should be added before other components that may possibly containing RNase (i.e. enzymes, plasmid)

Murine RNase Inhibitor is a 50 kDa protein that will be inactivated in denaturing conditions such as high temperature and denaturing agents, it must be used below 50°C.

## 3. Used in adding poly(A) tail to RNA

In the experiment of adding poly(A) tail to RNA, RNase Inhibitor can be added to enhance the stability of the RNA. 0.5  $\mu$ l of RNase inhibitor to a 20  $\mu$ l reaction is appropriate when the reaction is set-up. The additional volume can be subtracted from the amount of H<sub>2</sub>O used in the reaction.