Recombinant murine RNase inhibitor does not contain the pair of cysteines identified in the human version that is very sensitive to oxidation, which causes inactivation of the inhibitor (1). As a result, RNase Inhibitor, Murine has significantly improved resistance to oxidation compared to the human/porcine RNase inhibitors, and is stable at low DTT concentrations (< 1 mM). This makes it ideal for reactions where high concentration DTT is adverse to the reaction (e.g. Real-time RT-PCR).

Source: An E. coli strain that carries the Ribonuclease Inhibitor gene from mouse.

Applications:
- RT-PCR
- cDNA synthesis
- In vitro transcription/translation
- Enzymatic RNA labeling reaction
- Other applications where the integrity of RNA is important

Supplied in: 50 mM KCl, 20 mM HEPES-KOH (pH 7.6), 8 mM DTT and 50% glycerol.

Unit Definition: One unit is defined as the amount of RNase Inhibitor, Murine required to inhibit the activity of 5 ng of RNase A by 50%. Activity is measured by the inhibition of hydrolysis of cytidine 2', 3'-cyclic monophosphate by RNase A.

Quality Control Assays
Endonuclease Activity: Incubation of a 10 µl reaction containing 40 units of RNase Inhibitor, Murine with 300 ng supercoiled plasmid for 4 hours at 37°C produced < 10% nicked molecules as determined by gel electrophoresis.

RNase Assay: Incubation of a 10 µl reaction containing 40 units of RNase Inhibitor, Murine with 40 ng of RNA transcript for 4 hours at 37°C resulted in no detectable degradation of RNA as determined by gel electrophoresis.

Latent RNase Assay: Heating the RNase Inhibitor, Murine for 20 minutes at 65°C, followed by incubation of a 10 µl reaction containing 40 units of RNase Inhibitor with 40 ng of RNA transcript for 4 hours at 37°C resulted in no detectable degradation of RNA as determined by gel electrophoresis.

Notes On Use:
- Since ribonucleases typically retain activity under denaturing conditions, care must be taken to avoid denaturing RNase Inhibitor molecules which have complexed with a ribonuclease. To prevent the release of active ribonuclease, temperatures greater than 50°C and high concentrations of urea or other denaturing agents should be avoided.

The recommended concentration of RNase Inhibitor in a reaction is 1 unit/ml. During assembly of a reaction, RNase Inhibitor should be added before other components that are a possible source of RNase contamination (i.e. enzymes, plasmid from a mini prep.).

Reference: