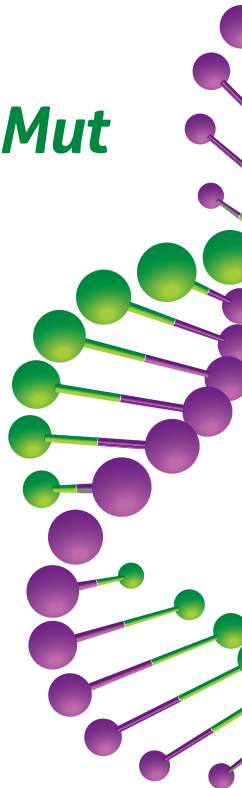
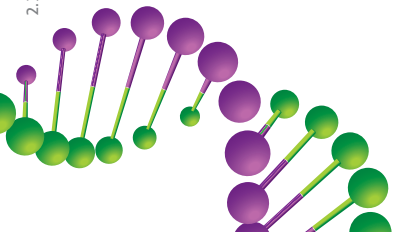


# ***RIBOPROTECT Hu-Mut***

RNase Inhibitor

2.2018

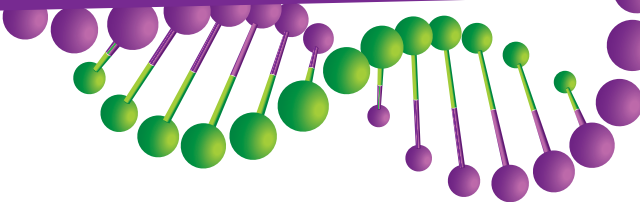


**blirt**

# ***RIBOPROTECT Hu-Mut***

## RNase Inhibitor

The ***RIBOPROTECT Hu-Mut*** is a genetically modified human placental RNase inhibitor expressed in *Escherichia coli*. The ***RIBOPROTECT Hu-Mut*** has significantly improved resistance to oxidation compared to the wild type human and porcine RNase inhibitors, and is stable at low DTT concentrations. This makes it ideal for reactions where high DTT should be avoided (eg. RT-qPCR). It inhibits ribonuclease (RNase) activity of common eukaryotic enzymes such as RNase A, RNase B, RNase C by non-covalent binding in a 1:1 ratio. ***RIBOPROTECT Hu-Mut*** is intended for use in applications where the presence of RNases may cause a hazard to RNA quality and experiment results, e.g. in RNA isolation, cDNA synthesis, RT-PCR, *in vitro* transcription and translation, or RNase-free monoclonal antibody preparation. ***RIBOPROTECT Hu-Mut*** shows no activity towards RNase 1, RNase T1, RNase T2, S1 nuclease and RNase H. It is compatible with DNA Polymerases and AMV or M-MuLV Reverse Transcriptases.



## Features and advantages

- Significantly improved resistance to oxidation
- Completely inhibits RNase A, B and C activity
- No polymerase or reverse transcriptase activity
- Free of DNase and RNase activity
- Stable up to 58°C and at low DTT concentrations (< 1 mM)
- Active in diverse reaction conditions and in various buffers
- Active over a broad pH range (pH 5.5–9.0)
- Compatible with the **TRANSCRIPTME** Reverse Transcriptase (cat. no. RT32)

## Applications

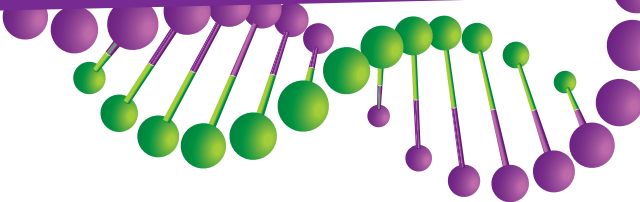
- RNA isolation and purification
- cDNA synthesis, RT-PCR, RT-qPCR
- *in vitro* transcription and translation
- RNase-free monoclonal antibody preparation

# ***RIBOPROTECT Hu-Mut***

## RNase Inhibitor

### Usage

- The optimal final concentration of the ***RIBOPROTECT Hu-Mut*** in a reaction depends on the level of RNase contamination, the incubation time and the compounds present in the reaction mixture. It falls within a range of 1–2 U/μl.
- For a standard reverse transcription reaction, use 1 μl (40 U) of the ***RIBOPROTECT Hu-Mut*** for a final sample volume of 20 μl.
- You may use higher concentrations of ***RIBOPROTECT Hu-Mut*** in RT-PCR if you suspect that RNase contamination causes certain samples to be difficult to amplify. The RNase inhibitor does not interfere with RT-PCR and RT-qPCR.
- During assembly of a reaction, ***RIBOPROTECT Hu-Mut*** should be added before other components that are possible sources of RNase contamination.
- Using ***RIBOPROTECT Hu-Mut*** does not exclude RNase H treatment after amplification of the first strand cDNA.



### Quality control

The absence of Endonuclease, Exonuclease, RNase and latent RNase activities has been confirmed using the relevant procedures. The purity is >90% as judged by SDS-polyacrylamide gels.

### Unit definition

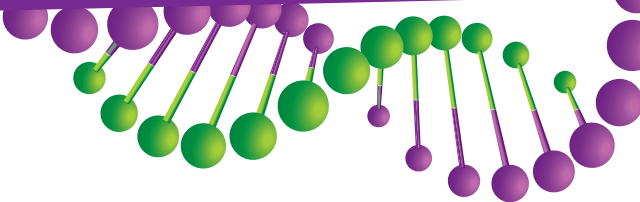
One unit is defined as the amount of enzyme required to inhibit the activity of 5 ng RNase A by 50%.

# **RIBOPROTECT *Hu-Mut***

## RNase Inhibitor

### Troubleshooting

| Problem                     | Possible cause   | Solution  |
|-----------------------------|--|---|
| No RNase Inhibitor activity | <i>RIBOPROTECT Hu-Mut</i> shows no activity towards the RNases present in the sample | Maintain aseptic working conditions. Use disposable gloves, changing them as frequently as required. Use RNase-free consumables. Only work in an area assigned for working with RNA and with equipment designated for that purpose. Use a different RNase inhibitor.  |
|                             | DTT concentration is too low   | Add DTT to a reaction to a final concentration of 0.5–1 mM DTT.   |
|                             | No activity owing to denaturing conditions   | Avoid conditions which compromise the <i>RIBOPROTECT Hu-Mut</i> activity: <ul style="list-style-type: none"><li>→ The enzyme activity is inhibited by denaturing agents such as SDS, urea and oxidising substances.</li><li>→ Inactivation of the enzyme occurs at 60°C during 10 min incubation.</li></ul> |



## Storage buffer

20 mM HEPES-KOH (pH 7.6); 50 mM KCl; 8 mM reducing agent; 50% (v/v) glycerol

# RIBOPROTECT Hu-Mut

RNase Inhibitor

| Component  | RT36-020<br>2000 U | RT36-100<br>10 000 U | RT36-S<br>200 U |
|--|--------------------|----------------------|-----------------|
| <i>RIBOPROTECT Hu-Mut</i><br>RNase Inhibitor (40 U/ $\mu$ l) | 50 $\mu$ l         | 250 $\mu$ l          | 5 $\mu$ l       |

## Storage & shipping

### Storage conditions

Store at -20°C in a freezer without a defrost cycle.

### Shipping conditions

Shipping on blue ice. In an exceptional cases shipping at RT is allowed unless it takes more than 7 days.

 For research use only

## Expiry

The information on the label