RiboSafe RNase Inhibitor

Ultimate RNA Protection

- **Efficient:** effectively inhibits a broad spectrum of eukaryotic RNases, including RNase A, B and C
- **High-quality:** certified free of contaminating DNases, RNases, phosphatases and nickases for improved sample security
- **Robust:** active up to 55 °C across a wide range of DTT concentrations and pH.
- **Flexible**: compatible with all common reverse transcriptases, bacterial polymerases and thermostable polymerases

RiboSafe RNase Inhibitor is a recombinant protein which completely inhibits a broad spectrum of eukaryotic RNases, including RNase A, B and C.

Ribonucleases (RNases) are ubiquitous and can be introduced into experiments in many ways: for example, co-purification during RNA isolation, carryover from bare hands and pipette tips. This RNase contamination can often go unnoticed. RiboSafe RNase Inhibitor is ideal for RNA-sensitive applications such as RT-qPCR as even a small amount of RNase can be detrimental to the final experimental outcome. RiboSafe RNase Inhibitor is a highly efficient inhibitor (Fig. 1) of a broad spectrum of eukaryotic RNases and shows no inhibition of polymerase or reverse transcriptase activity (Fig. 2), so can be used in cDNA synthesis or one-step RT-qPCR reactions.

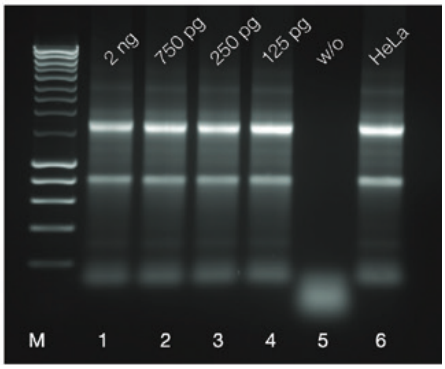

Fig. 1 The effect of RNase concentration on RiboSafe function
HeLa cell total RNA was incubated at 37 °C for 30 min with RiboSafe RNase Inhibitor in the presence of between 2 ng and 125 pg of RNase A (lanes 1—4), no RiboSafe RNase Inhibitor and 125 pg of RNase A (lane 5) and no RiboSafe RNase Inhibitor, no RNase A (lane 6). The results illustrate that even when high levels of RNase is present, there is no visible degradation of RNA in the presence of RiboSafe RNase Inhibitor.

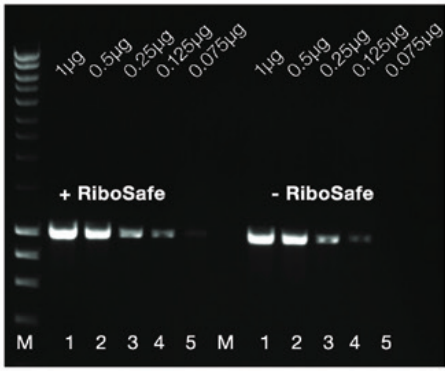

Fig. 2 The effect of RiboSafe on reverse transcriptase
A 2-fold serial dilution of HeLa cell total RNA (1 µg—0.075 µg) was reverse transcribed in the presence (lanes 1—5) and in the absence (lanes 7—11) of RiboSafe RNase Inhibitor, followed by the amplification of a 1 kb fragment of the angiotensin II receptor gene using MyFi™ Mix under recommended PCR conditions. There was no detectable difference in PCR product in the presence or absence of RiboSafe RNase Inhibitor, indicating that the addition of RiboSafe RNase Inhibitor does not interfere with the function of reverse transcriptase during cDNA synthesis.

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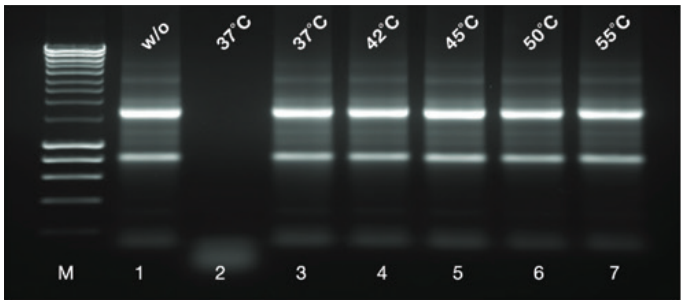

Fig. 3 Effect of temperature on RiboSafe RNase Inhibitor activity
2 µg aliquots of mouse total RNA were incubated at 37 °C with RiboSafe RNase Inhibitor and no RNase A (lane 1), no RiboSafe RNase Inhibitor and RNase A (lane 2), or with RiboSafe RNase Inhibitor and RNase A at 37 °C, 42 °C, 45 °C, 50 °C, and 55 °C for 30 minutes (lanes 3—7, respectively, HyperLadder 1kb (M)). Regardless of the temperature, there is no visible RNA degradation when incubated with RiboSafe RNase Inhibitor.

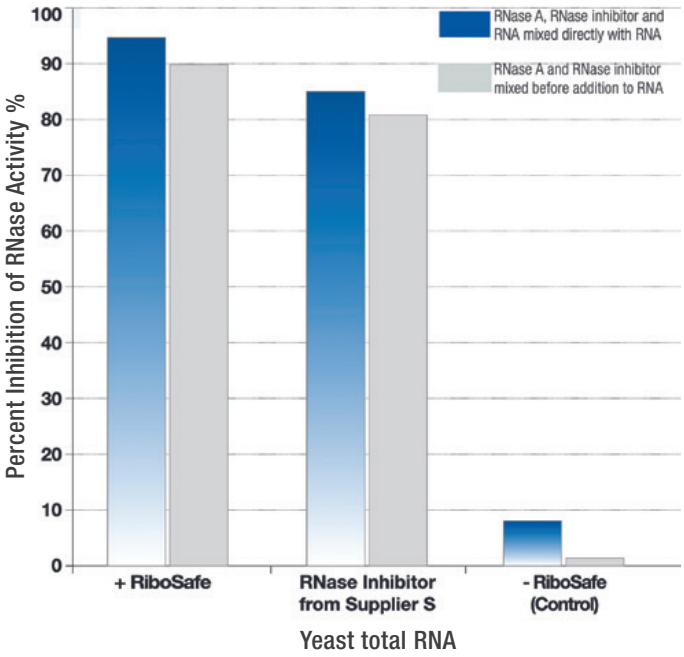

Fig. 4 Superior RNA protection
RNase A and RNase inhibitor were incubated directly with yeast total RNA (blue columns) or RNase A and RNase inhibitor were mixed and pre-incubated before addition to yeast total RNA (grey columns). The RNA was then quantified by spectrophotometry to assess RNA degradation. Whether the RNA is added to the buffer at the same time as RiboSafe and RNase A, or RiboSafe and the RNase A are pre-incubated prior to the addition of the RNA. The results illustrate that RiboSafe RNase Inhibitor blocks more of the RNase A activity than the RNase inhibitor from supplier S.

APPLICATIONS

- RNA purification
- cDNA synthesis
- One-step RT-PCR
- One-step RT-qPCR
- *In vitro* transcription/translation
- RNA sequencing
- RNase protection assays
- Enzymatic RNA labeling reaction

QUALITY CONTROLLED

RiboSafe RNase Inhibitor is tested for:

- Purity (run on SDS-PAGE gel)
- Presence and absence of endonucleases, nickases and exonucleases
- Thermostability (Fig. 3)
- Inhibition at different pH levels
- Activity in the presence or absence of DTT

This quality control allows RiboSafe RNase Inhibitor to be used in highly-sensitive techniques such as single-cell RT-PCR (Fig. 4), *in vitro* RNA synthesis and *in vitro* translation.

Ordering Information

RiboSafe RNase Inhibitor	Size	Cat. #
RiboSafe RNase Inhibitor	2,500 Units	BIO-65027
	10,000 Units	BIO-65028

Please contact us for institutional pricing, special price quotations and availability of bulk pack sizes. For related products, such as nucleic acid isolation kits, reverse transcriptase and RT-qPCR kits visit **www.bioline.com**

Contact information:

Global
E: info@meridianlifescience.com
Toll free: +1 800 327 6299

Australia
E: info.au@meridianlifescience.com
Tel: +61 (0)2 9209 4180

Connect with us:

bioline.com/ribosafe

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