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# RiboGrip™ RNase inhibitor

A unique chimeric RNase inhibitor protein with increased temperature tolerance

[solisbiodyne.com](http://solisbiodyne.com)



**RiboGrip™ RNase inhibitor** is a unique chimeric protein of mammalian origin, expressed in *E. coli* and purified according to state-of-the-art protein purification methods. RiboGrip™ inhibits the activity of ribonuclease A by forming a strong noncovalent bond in a non-competitive mode at a 1:1 ratio. It is primarily used for preventing RNA degradation by contaminating RNases in various assays that use RNA sample materials, such as first strand cDNA synthesis, RT-qPCR and many others.

RiboGrip™ also includes a genetic modification - **Stability TAG** - Solis BioDyne's proprietary and patented polypeptide stabilization technology [1]. Stability TAG makes RiboGrip™ extremely tolerant to higher temperatures, as shown in Figure 1, enables room temperature shipping as well as effective use in assays requiring high incubation temperatures.

[1] Kahre, O. et al., Compositions for increasing polypeptide stability and activity, and related methods, EP2501716B1 (2015) and US9321999B2 (2016)

#### **Routine storage at -20 °C**

- Stability at room temperature (15-25 °C) for at least 1 month
- Stability at +4 °C for 6 months
- Shelf life at -20 °C max. 3 years (until expiry date)

**Shipping conditions:** at room temperature

» Dry ice-free shipping!

» Request for glycerol-free RiboGrip™

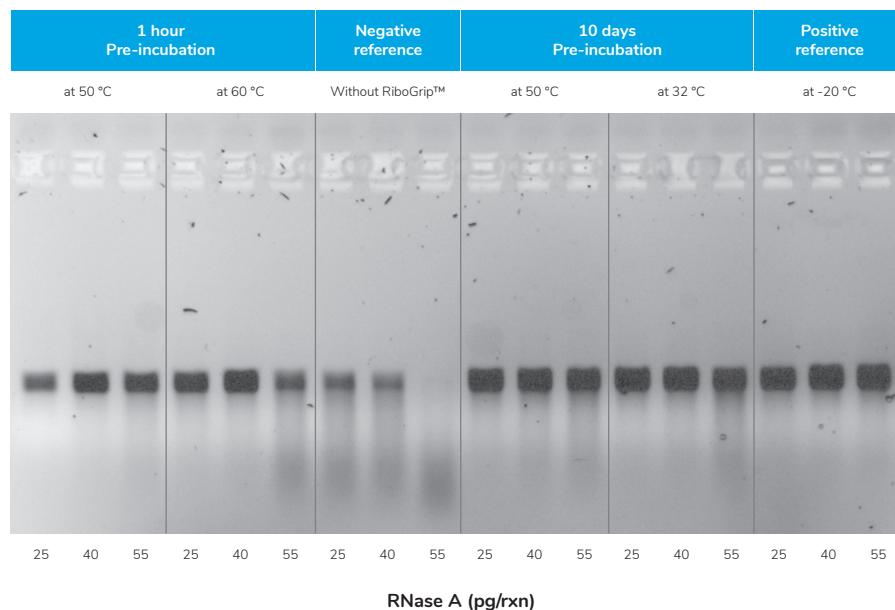
## Features

- **Concentration:** 40 U/μl
- **Origin:** recombinant mammalian chimeric protein
- **Source:** Purified from an *E. coli* strain that carries an overproducing plasmid containing a RiboGrip™ RNase Inhibitor gene
- **Molecular weight:** 47 kD monomer
- **Protein purity:** ≥95% (SDS-PAGE)
- **Unit definition:** One unit is defined as the amount of protein 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 ribonuclease A.
- **Storage buffer:** 50% glycerol (v/v), 20 mM Tris-HCl pH 7.5, 100 mM KCl, 0.1 mM EDTA, 5 mM DTT and stabilizers.
- **Specificity:** RNase A, other not tested
- **Recommendations for use:** variable, generally used at 1 U/μl final reaction concentration
- **Inactivation:** at 85 °C for 5 min.

## Applications

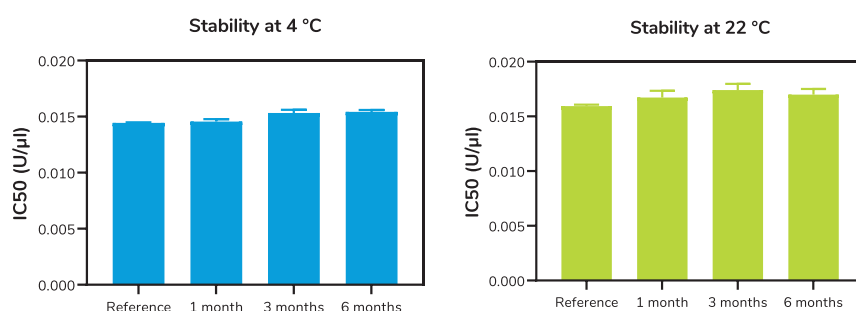
- First-strand cDNA synthesis
- RT-PCR
- RT-qPCR
- RT-LAMP
- *in vitro* transcription and translation
- RNA isolation and purification

## Stress tests with RiboGrip™ show great tolerance to high temperatures



**Figure 1.** RiboGrip™ activity on inhibition of RNase A mediated cleavage of synthetic RNA. The tolerance of RiboGrip™ to high temperatures was tested by assessing the RNA protective effect of RiboGrip™ in the presence of RNase A. RiboGrip™ was stored at 50 °C or 60 °C for 1 hour, and at 50 °C or 32 °C for 10 days (control sample stored at -20 °C). Thereafter, RiboGrip™ stored according to respective stress condition was used in an assay employing RNase A (25, 40, 55 pg/rxn, total reaction volume: 12 µl) and transcribed RNA (RNA 2 II, GAPDH, ~3000 bp). The reagents were incubated in the presence of TDG buffer at 32 °C for 60 min and resulting inhibition of cleavage of RNA by RiboGrip™ RNase inhibitor (55 U/rxn) was visualised on a 0.9% TBE gel.

## RiboGrip™ is stable at room temperature



**Figure 2.** RiboGrip™ activity on inhibition of RNase A mediated cCMP cleavage. RiboGrip™ stability upon 1 to 6 months storage at 4 °C and at 22 °C was determined by its ability to inhibit the hydrolysis of cyclic 2',3'-cCMP by RNase A in a spectrophotometric recording assay. The rate of hydrolysis of the 2',3'-cCMP is determined from the rate of increase in absorption produced at 290 nm using NanoDrop™ 2000c. Samples of RiboGrip™ were stored at 4 °C or at room temperature (22 °C) for 1, 3 and 6 months. RNase A at equal concentrations (80 pg/µl) was added to mixes containing Tris-HCl buffer, cyclic 2',3'-cCMP and serial dilution of RiboGrip™ (0.032-0.002 U/µl). At every inspected time point of absorption assay the inhibition efficiency of RiboGrip™ does not drop more than 10% ( $P > 0.05$ ) in comparison to reference sample stored at -20 °C.

RiboGrip™ is a **great fit with highly thermostable reverse transcriptases**, such as FIREScript® and SOLIScript®, allowing effective use with complex RNA templates and in one-step RT-qPCR assays, both of which may require higher RNA denaturation and/or RT reaction temperatures up to 60 °C.

## Ordering information

## Bulk solutions available!

Product	CAT. NO.	Size (U)	Size (µl)	20 µl Reactions
RiboGrip™ RNase Inhibitor	06-22-00400	400 U	10 µl	20 rxn SAMPLE
	06-22-01000	1000 U	25 µl	50 rxn
	06-22-04000	4000 U	100 µl	200 rxn

FL-06-22-V1



For further details and ordering please contact [info@solisbiodyne.com](mailto:info@solisbiodyne.com) or call +372 740 9960

» Request for FREE SAMPLE!