

# Recombinant RNase Inhibitor, GPR

Code No. 2314A  
Size: 5000 units

Shipping at  $-20^{\circ}\text{C}$   
Store at  $-20^{\circ}\text{C}$

Conc.: 40 units/ $\mu\text{l}$

## Description:

Recombinant RNase Inhibitor, GPR is a registered general purpose reagent (GPR) appropriate for use in general laboratory applications, including molecular diagnostic development and testing.

Recombinant RNase Inhibitor is a recombinant protein purified from *E. coli* using affinity chromatography. This product has characteristics similar to RNase inhibitors from porcine liver and human placenta.<sup>1,2</sup> It forms a 1 : 1 complex with RNase A to inhibit RNase activity.<sup>3</sup> This reaction is reversible, and the inhibitor can be irreversibly inactivated to restore ribonuclease activity by dissociating the complex with urea or sulfhydryl reagent. RNase Inhibitor can be added directly to reaction mixtures containing RNA. Moreover, unlike other non-protein competitive inhibitors (e.g., nucleotides and inorganic phosphates), it can easily be removed from the reaction system by phenol extraction. This product does not inhibit RNase H activity of reverse transcriptases and can be used in the same applications as RNase inhibitors derived from human placenta and porcine liver.

## Storage Buffer:

|       |                    |
|-------|--------------------|
| 20 mM | HEPES-KOH (pH 7.5) |
| 50 mM | KCl                |
| 5 mM  | DTT                |
| 50%   | Glycerol           |

## Source:

*E. coli* containing a plasmid that carries the porcine RNase Inhibitor gene.

## Unit definition:

One unit is defined as the amount of the RNase inhibitor required to inhibit the activity of 5 ng of RNase A by 50% as determined by the ability of RNase A to inhibit the hydrolysis of cyclic 2', 3'-CMP.<sup>4</sup>

## Note:

Recombinant RNase Inhibitor is active over a wide pH range, but pH 7 - 8 is optimal.

Recombinant RNase Inhibitor requires DTT of at least 1 mM to be active.

## Applications:

1. cDNA synthesis (RNase Inhibitor, 0.5 unit/ $\mu\text{l}$  reaction)<sup>5</sup>
2. *In vitro* translation (RNase Inhibitor, 1 unit/ $\mu\text{l}$  reaction)<sup>6</sup>
3. *In vitro* transcription with cell-free extract (RNase Inhibitor, 20 units/ $\mu\text{l}$  reaction)<sup>7</sup>
4. *In vitro* transcription with SP6 or T7 RNA polymerase (RNase Inhibitor, 1 unit/ $\mu\text{l}$  reaction)<sup>7</sup>
5. Polysome isolation (RNase Inhibitor, 1 unit/ $\mu\text{l}$  reaction)<sup>6</sup>

## References:

- 1) Burton, L. E. and Fucci, N. P. *Int J Pept Protein Res.* (1982) **19**: 372-379.
- 2) Blackburn, P., Wilson, G., and Moore, S. *J Biol Chem.* (1977) **252**:5904-5910.
- 3) Turner, P. M., Lerea, K. M., and Kull, F. *J. Biochem Biophys Res Comm.* (1983) **114**: 1154-1160.
- 4) Blackburn, P. *J Biol Chem.* (1979) **254**: 12484-12487.
- 5) de Martynoff, G., Pays, E., and Vassart, G. *Biochem Biophys Res Comm.* (1980) **93**: 645-653.
- 6) Scheele, G. and Blackburn, P. *Proc Natl Acad Sci USA.* (1979) **76**: 4898-4902.
- 7) Eichler, D. C., Tatar, T. F., and Lasater, L. S. *Biochem Biophys Res Comm.* (1981) **101**: 396-403.

## Notice To Purchaser:

**General Purpose Reagent.** This product is intended For Laboratory Use. Outside of the United States, this product is intended for research use only unless otherwise stated. This product is not intended for a specific application or made for any clinical use. The performance characteristics of this product have not been fully established. It is the user's responsibility to validate the performance of the product, and any component thereof, for any particular use. Resale or transfer of this product, any component thereof, or any substance produced through use of this product, or any component thereof, to any third party is expressly forbidden without written approval from TAKARA BIO INC. To obtain additional rights, please contact us by phone at +81 77 565 6973 or from our website. <http://www.takara-bio.com>.

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