For life science research only.
Not for use in diagnostic procedures.

Protector RNase Inhibitor

Version: 17
Content Version: March 2023

Special quality for molecular biology.

Cat. No. 03 335 399 001	2,000 U >40 U/µl
Cat. No. 03 335 402 001	10,000 U 5 x 2,000 U

Store the product at −15 to −25°C.

1. General Information

1.1. Contents

Vial / bottle	Label	Function / description	Catalog number	Content
1	Protector RNase Inhibitor	Storage buffer: 20 mM HEPES-KOH, 50 mM KCl, 5 mM dithiothreitol, 50% glycerol (v/v), pH approximately 7.6 (+4°C).	03 335 399 001	1 vial, 50 µl
			03 335 402 001	5 vials, 50 µl each

1.2. Storage and Stability

Storage Conditions (Product)

When stored at −15 to −25°C, the product is stable through the expiry date printed on the label.

Vial / bottle	Label	Storage
1	Protector RNase Inhibitor	Store at −15 to −25°C.

1.3. Additional Equipment and Reagent required

For RT-PCR

- Transcriptor Reverse Transcriptase*
- Taq DNA Polymerase*
- FastStart Taq DNA Polymerase*
- Expand High Fidelity PCR System*
- Titan One Tube RT-PCR System*

For cDNA synthesis

- cDNA Synthesis System

For Real-time PCR

- LightCycler® Reagents and Kits*

For *in vitro* transcription/translation

- T7 RNA Polymerase*

1.4. Application

Protector RNase Inhibitor inactivates a wide spectrum of RNases, including:
- RNase A
- RNase B
- RNase T2

Therefore, Protector RNase Inhibitor prevents RNase degradation in any application where RNases could cause problems:
- Protect mRNA during cDNA synthesis reactions, RT-PCR in conventional thermal cyclers and qPCR systems, or *in vitro* transcription/translation reactions.
- Protect viral RNA during *in vitro* virus replication.
- Inhibit RNases during RNA isolation and purification.
- As used in RNase protection assays.
- Preparing RNase-free antibodies.

Protector RNase Inhibitor does not interfere with enzymes commonly used to prepare or analyze RNA, for example:

Application	Products
RT-PCR	Transcriptor Reverse Transcriptase*, when used with: ▪ Taq DNA Polymerase* ▪ FastStart Taq DNA Polymerase* ▪ Expand High Fidelity PCR System* Titan One Tube RT-PCR System*
cDNA synthesis	cDNA Synthesis System
Real-time qPCR	LightCycler® Reagents and Kits*
In vitro transcription/translation	T7 RNA Polymerase* (in wheat germ lysate)

2. How to Use this Product

2.1. Parameters

Bioburden

<50 cfu/ml

Contaminants

DNA content <100 pg/mg.

Inactivation

Severe denaturation conditions, such as temperatures >+65°C inactivate the inhibitor.

Isoelectric Point

pH 4.5

Molecular Weight

Approximately 50 kDa.

pH Optimum

pH 5.0 to 9.0

Purity

>95% (SDS-PAGE), only one band visible.

Temperature Optimum

+25 to +55°C
Enzyme retains partial activity at +60°C.

Unit Assay

Activity is measured as ability to inhibit hydrolysis of cyclic cytidine-2′:3′-monophosphoric acid. Under assay conditions, 200 U of Protector RNase Inhibitor inhibits 50% of the activity of 1 µg RNase A.

Unit Definition

One U of Protector RNase Inhibitor is defined as the amount of protein required to inhibit 50% of the activity of 5 ng RNase A.

Volume Activity

>40 U/µl

Working Concentration

Application	Inhibitor Concentrations [U]
One-step RT-PCR	5 – 10
Two step RT-PCR	25 – 50
In vitro transcription	20

⚠ ***You may use higher concentrations of Protector RNase Inhibitor in RT-PCR if you suspect that RNase contamination causes certain samples to be difficult to amplify. The inhibitor does not interfere with the reaction. In a test system, even a 16-fold higher concentration of inhibitor did not interfere with RT-PCR.***

3. Additional Information on this Product

3.1. Test Principle

Preparation

Rat lung; recombinant product is produced in *E. coli*.

3.2. Quality Control

For lot-specific certificates of analysis, see section, **Contact and Support**.

4. Supplementary Information

4.1. Conventions

To make information consistent and easier to read, the following text conventions and symbols are used in this document to highlight important information:

Text convention and symbols	
Information Note: Additional information about the current topic or procedure.	
Important Note: Information critical to the success of the current procedure or use of the product.	
① ② ③ etc.	Stages in a process that usually occur in the order listed.
❶ ❷ ❸ etc.	Steps in a procedure that must be performed in the order listed.
* (Asterisk)	The Asterisk denotes a product available from Roche Diagnostics.

4.2. Changes to previous version

Front page updated to align information about volume activitiy with information included in Chapter 2.1 Parameters.

4.3. Ordering Information

Product	Pack Size	Cat. No.
Reagents, kits		
Transcriptor Reverse Transcriptase	500 U, 50 reactions of 20 µl final volume	03 531 295 001
	2,000 U, 4 x 500 U, 200 reactions of 20 µl final volume	03 531 287 001
Taq DNA Polymerase, 5 U/µl	100 U, 5 U/µl, 80 reactions	11 146 165 001
	500 U, 5 U/µl, 400 reactions	11 146 173 001
	4 x 250 U, 5 U/µl, 800 reactions	11 418 432 001
	10 x 250 U, 5 U/µl, 2,000 reactions	11 596 594 001
	20 x 250 U, 5 U/µl, 4,000 reactions	11 435 094 001
FastStart Taq DNA Polymerase, 5 U/µl	100 U, 1 x 100 U, 50 reactions in a final volume of 50 µl	12 032 902 001
	500 U, 2 x 250 U, 250 reactions in a final volume of 50 µl	12 032 929 001
	1,000 U, 4 x 250 U, 500 reactions in a final volume of 50 µl	12 032 937 001
	2,500 U, 10 x 250 U, 1,250 reactions in a final volume of 50 µl	12 032 945 001
	5,000 U, 20 x 250 U, 2,500 reactions in a final volume of 50 µl	12 032 953 001
Expand High Fidelity PCR System	100 U, 1 x 100 U, 40 reactions in a final volume of 50 µl	11 732 641 001
	500 U, 2 x 250 U, 200 reactions in a final volume of 50 µl	11 732 650 001
	2,500 U, 10 x 250 U, 1,000 reactions in a final volume of 50 µl	11 759 078 001
T7 RNA Polymerase	1,000 U, ≥ 20 U/µl	10 881 767 001
	5,000 U, ≥ 20 U/µl	10 881 775 001
Titan One Tube RT-PCR System	100 µl, 100 reactions	11 855 476 001

4.4. Trademarks

EXPAND, LIGHTCYCLER and FASTSTART are trademarks of Roche.
All other product names and trademarks are the property of their respective owners.

4.5. License Disclaimer

For patent license limitations for individual products please refer to:
List of biochemical reagent products and select the corresponding product catalog.

4.6. Safety Data Sheet

Please follow the instructions in the Safety Data Sheet (SDS).

4.7. Contact and Support

To ask questions, solve problems, suggest enhancements or report new applications, please visit our **Online Technical Support Site**.

To call, write, fax, or email us, visit **sigma-aldrich.com**, and select your home country. Country-specific contact information will be displayed

0323.03320600001 ©

Roche Diagnostics GmbH
Sandhofer Strasse 116
68305 Mannheim
Germany