RNAGuardian™ Stabilization Solution

For research use only

Catalogue Number

RG1.5, RG005, RG100, RG250, RG500

Introduction

The RNAGuardian™ Stabilization Solution is an advanced aqueous reagent designed for the rapid preservation and stabilization of RNA in biological specimens. Upon immersion, the solution quickly permeates tissues and cells to immediately inactivate endogenous ribonucleases (RNases) and freeze the gene expression profile. This eliminates the need for immediate sample processing, liquid nitrogen flash-freezing, or dry-ice transportation. RNAGuardian™ Stabilization Solution ensures superior RNA integrity and is fully compatible with all major downstream applications, including RT-qPCR, microarray analysis, and Next-Generation Sequencing (NGS).

Content

Cat. No.	Product	Volume
RG500	RNAGuardian™ Stabilization Solution	500 ml
RG250		250 ml
RG100		100 ml
RG005-20		5 ml x20
RG1.5-50		1.5 ml x50

Storage

- Store RNAGuardian™ Stabilization Solution at room temperature.
- Under cold conditions, salt precipitation may occur. If any precipitate is observed, heat the solution to 37°C and agitate gently until completely redissolved before use.

Caution

- Always wear a lab coat, disposable gloves, protective goggles and (anti-fog) procedure mask when using RNAGuardian™ Stabilization Solution.
- RNAGuardian™ Stabilization Solution reacts violently with hypochlorite-based solutions (such as common bleach). Mixing this reagent with bleach generates hazardous heat and releases highly toxic chlorine gas. Never add bleach directly to liquid waste containing this product.

Instruction for Use of RNAGuardian™ Stabilization Solution

Procedure

- **Sample Prep:** Use freshly harvested tissue only. Do not freeze specimens prior to immersion.
- **Tissue Sizing:** For optimal reagent penetration, mince or cut larger tissue samples to ≤0.5 cm in at least one dimension.
- **Immersion:** Submerge the prepared tissue in 5 to 10 volumes of RNAGuardian™ Stabilization Solution (e.g., 500 µl to 1 ml of solution per 100 mg of tissue).
- **Initial Equilibration (Crucial):** Do not freeze samples immediately. Store the mixture at 4°C overnight to allow complete stabilization and full penetration of the solution into the tissue matrix.
- **Short-term Storage:** Dispatched samples can be maintained at room temperature (15 to 25°C) for up to 1 week.
- **Long-term Archiving:** Following overnight equilibration at 4°C, aspirate the supernatant, remove the tissue, and transfer it to -20°C or -80°C for indefinite archival storage.

Sample	Detailed Protocol
Animal Tissue	• RNAGuardian™ Stabilization Solution preserves the structural and histological integrity of biological specimens without inducing cellular disruption. Consequently, tissues that have reached equilibrium within the solution may be retrieved, sectioned into smaller fragments, and safely re-immersed into RNAGuardian™ Stabilization Solution for continued preservation. • Intact small organs (e.g., murine liver, kidney, and spleen) can be processed and stored whole directly in the solution, provided that the total specimen volume conforms to the recommended reagent-to-tissue ratio.
Plant Tissue	• Plant tissues possessing intrinsic barriers to diffusion, such as hydrophobic waxy cuticles on leaf surfaces, typically require structural or mechanical disruption (e.g., scoring or slicing) to ensure adequate penetration of RNAGuardian™ Stabilization Solution. • Conversely, many plant tissues can be submerged whole directly into RNAGuardian™ Stabilization Solution without prior processing; for instance, the successful isolation of high-quality, intact RNA has been validated in whole *Arabidopsis*.
Cultured Cells	• Harvest cells by centrifugation according to your laboratory's standard operating protocols. • If desired, the cell pellet may be washed with 1X PBS prior to preservation. • Completely aspirate the supernatant and resuspend the cell pellet thoroughly in 5 to 10 volumes of RNAGuardian™ Stabilization Solution.
Blood and Plasma	• White blood cells (WBCs) can be effectively preserved in RNAGuardian™ Stabilization Solution once fully fractionated from erythrocytes and serum. Following separation, the isolated cellular pellet should be processed in accordance with the protocol designated for cultured cells.
Yeast	• Centrifuge up to 3 x 10^8 yeast cells at 12,000 xg for 2 minutes. • Discard the supernatant completely and immediately resuspend the pellet in 0.5 to 1 ml of RNAGuardian™ Stabilization Solution. • For long-term storage, incubate the cells in the solution at room temperature or 4°C for 1 hour to ensure full stabilization. Re-pellet the cells by centrifugation at >12,000 xg for 5 minutes, remove the supernatant entirely, flash-freeze the pellet, and transfer to -80°C for archiving.

Storage in RNAGuardian™ Stabilization Solution	
Storage at -80°C	• Incubate samples in RNAGuardian™ Stabilization Solution overnight at 4°C before freezing at -80°C to ensure full tissue penetration. • For faster subsequent thawing, remove excess solution from tissue or pellet cells prior to freezing at -80°C. • Archived samples can be subsequently thawed at room temperature for immediate downstream use.
Storage at -20°C	• Prior to storage at -20°C, incubate samples in RNAGuardian™ Stabilization Solution overnight at 4°C to ensure complete tissue penetration. • Specimens can be archived at -20°C indefinitely. Although salt crystals may form at this temperature due to the high-density formulation, the solution remains un-frozen, and crystal formation will not affect subsequent RNA isolation. • Archived samples can be subsequently thawed at room temperature for immediate downstream use.
Storage at 4°C	• Most specimens can be preserved in RNAGuardian™ Stabilization Solution at 4°C for up to 1 month without significant RNA degradation.
Storage at Room Temperature	• For short-term workflows, most samples remain stable at 25°C for up to 1 week with no discernible loss in RNA quality.