RNAKeep Reagent

Cat. No. DPT-BD08

Introduction

RNAKeep Reagent is a novel technology for the immediate preservation of the gene expression pattern in tissues and cells, which enables reliable gene expression analysis. After harvesting, tissues should immediately be submerged in RNAKeep Reagent, which rapidly permeates the tissues to stabilize and protect cellular RNA in situ.

The reagent preserves RNA for up to 1 day at 37 °C, 7 days at 15-25 °C, or 4 weeks at 2-8 °C, and it allows the transportation, storage, and shipping of samples without ice or dry ice. Alternatively, the samples can be stored at –20 or –80°C. During storage or transportation in RNAKeep Reagent, the cellular RNA remains intact and undegraded even at elevated temperatures (e.g., room temperature or 37°C). RNAKeep technology allows the easy processing of large numbers of samples and replaces inconvenient, dangerous, and equipment-intensive methods, such as snap-freezing in liquid nitrogen, storing at –80 °C, cutting and weighing on dry ice, and the immediate processing of harvested samples.RNA Keep Reagent can be used for various animal tissues, including brain, heart, kidney, spleen, lung, liver, and thymus tissue.

Recommended Amounts of RNAKeep Reagent for Different Tissues (Mouse)

Tissue	Weight (mg)	RNAkeep (ml)
Kidney	100-500	1-5
Spleen	100-300	1-3
Lung	100-300	1-3
Heart	100-170	1-1.7
Liver	100-1000	1-10

Important Notes

1. RNAKeep Reagent is only suitable for fresh animal tissues that have not been frozen.
2. Immediately after harvesting, the tissue should be placed in at least 10 volumes of the RNAKeep Reagent.
3. To ensure rapid and reliable stabilization of RNA even in the inner parts of solid tissues, the sample must be cut into slices that have a thickness of less than 0.5 cm. In slices thicker than 0.5 cm, the reagent diffuses too slowly into the interior of the sample and RNA degradation occurs.

RNAKeep Reagent

Component

Content	100 mL
RNAKeep Reagent	100 mL

Storage

RNAKeep Reagent stored dry at room temperature (15-25°C) is stable for at least 12 months. The storage of RNAKeep Reagent at lower temperatures may cause precipitation. Before using the reagent, redissolve the precipitate by heating the reagent to 37°C.

Protocol

A. Animal Tissues

1. Estimate the volume of the sample to be stabilized in RNAKeep Reagent before excising the tissue sample.
2. Determine the appropriate volume of RNAKeep Reagent to preserve the tissue. At least 10 volumes of the reagent (or approximately 1 mL reagent per 100 mg of tissue) are required. Pipette the correct quantity of reagent into an appropriate collection vessel.
3. Excise the tissue sample from the animal and cut it into slices with a thickness of less than 0.5 cm if necessary. Perform this step as rapidly as possible and proceed immediately to step 4.

Note: For efficient RNA stabilization, the tissue sample must be less than 0.5-cm thick.

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4. Completely submerge the tissue in the collection vessel containing the RNAKeep Reagent from step.

Note: The tissue sample must be immediately submerged in RNAKeep Reagent to protect the RNA.

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5. Store the tissue submerged in RNAKeep Reagent for up to 4 weeks at 2-8 °C, up to 7 days at 15-25 °C, or up to 1 day at 37°C. For archival storage at −20 or −80 °C, incubate the tissue overnight in the reagent at 2-8°C. Then, remove the tissue from the reagent and store the tissue at −20 or −80 °C.

Note: Lower temperatures are recommended for longer storage (e.g., 2-8 °C for up to 4 weeks instead of 37 °C or room temperature; −20 or −80 °C for longer storage). RNAKeep-stabilized tissues stored at −20 or −80 °C can be thawed at room temperature and frozen again for up to 20 freeze–thaw cycles without affecting the RNA quality or yield. When transporting tissue samples in RNAKeep Reagent, ensure that the tissues always remain submerged in the reagent.

B. Plant Tissue

Add the sample into a tube with 5 volumes of RNAKeep Reagent.

C. Culture Cells

Spin down the cells, wash the cells with PBS buffer, resuspend the cells in PBS buffer, and add 5 volumes of RNAKeep Reagent. White blood cells: Separate white blood cells from the whole blood, wash them with PBS buffer, resuspend them with PBS buffer, add 5 volumes of RNAKeep.

D. Bacteria

Spin down the cells, wash the cells with TE buffer, resuspend the cells with TE buffer, and add 5 volumes of RNAKeep.

E. RNA Purification

1. Tissue: Remove the RNAKeep Reagent from tissues, and proceed with RNA extraction protocols.
2. Cells: Spin down the cells at 5000 × g for 3 minutes, remove the RNAKeep Reagent, and proceed with RNA extraction protocols.

F. Genomic DNA Isolation

Remove the RNAKeep Reagent from tissues and cells, and proceed with DNA extraction protocols.

G. Protein Isolation

Proteins are denatured with RNAKeep Reagent. Proteins purified from samples are suitable for Western blotting or 2D gel electrophoresis but not for applications that require native proteins.