RNAstore Reagent

For immediate stabilization of the nucleic acid in harvested animal tissues

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RNAstore Reagent

Cat. no. 4992727

Kit Contents

Cat.no.	Size
4992727	100 ml
Handbook	1

Storage

RNAstore Reagent should be stored dry at room temperature (15-25°C) and are stable for at least 12 months under these conditions. Storage of RNAstore Reagent at lower temperatures may cause precipitation. Before using the reagent, redissolve the precipitate by heating to 37°C.

Introduction

RNAstore reagent is a liquid, non-toxic tissue preservation reagent. It can penetrate into tissue cells rapidly and protect RNA in non-frozen cells *in situ* by effectively inhibiting RNase activity, making it more suitable for the analysis of tissue gene expression profile. After harvesting, tissues are immediately soaked in RNAstore for preservation without causing RNA degradation, so that the sample does not have to be processed immediately or frozen in liquid nitrogen. RNAstore Reagent can be widely used for various animal tissues, including brain, heart, kidney, spleen, liver, lung and thymus, etc.

Recommended amount of RNAstore Reagent for different tissues (rat):

Tissue	Weight (mg)	RNAstore (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

After store fresh tissue with RNAstore reagent in the ratio of 1:10, 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. Alternatively, the samples can be archived at -20°C or -80°C. Tissues stored with RNAstore reagent could be repeated freezing and thawing for at least 20 times.

Important Notes Before Starting

1. RNAstore Reagent is only suitable for fresh animal tissues that have not been frozen.
2. To ensure rapid and reliable stabilization of RNA even in the inner parts of solid tissues, the sample must be cut into slices less than 0.5 cm thick and then stored with 10 volumes of RNAstore Reagent. If the slices are thicker than 0.5 cm, the reagent will diffuse too slowly into the interior of the sample and RNA degradation will occur.

Protocol

1. Before cutting the tissue sample, estimate the volume of the sample to be stabilized in RNAstore Reagent. Add at least 10 volumes of RNAstore reagent (For instance: 100 mg tissue with 1 ml RNAstore Reagent)
2. Cut the tissue sample from the animal, and if necessary, cut it into slices less than 0.5 cm thick.

   Note: For effective RNA stabilization, the tissue sample must be less than 0.5 cm thick and the tissue sample need to be submerged completely into RNAstore Reagent.
3. Store the tissue submerged in RNAstore 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°C or -80°C, first incubate the tissue overnight in the reagent at 2-8°C. Then remove the tissue from the reagent, and transfer it to -20°C or -80°C for storage.

Note: Lower temperature is recommended for longer storage (e.g., 2-8°C for up to 4 weeks instead of 37°C or room temperature; -20°C or -80°C for longer storage).

RNAstore stabilized tissues stored at -20°C or -80°C can be thawed at room temperature and frozen again for up to 20 freeze-thaw cycles without affecting RNA quality or yield.

If transporting tissue samples in RNAstore Reagent, ensure that the tissues always remain submerged in the reagent.

4. After storage, purify RNA using a TIANGEN RNA isolation product (Trizol, RNAprep Pure, RNAsimple).

Other Application

1. RNAstore Reagent could not be used to store leaf samples, since its wax epidermis would block the osmosis of RNAstore.
2. For cultured cells, precipitate cells first, then wash the cell pellet with PBS, then re-suspend cells with PBS and stored with 2 time volumes of RNAstore. Downstream RNA purification can be processed after RNAstore removal by centrifugation. There is also another protocol for RNA purification experiments without the step of RNAstore removal.

   Centrifugation: Since the medium concentration of RNAstore is higher than regular culture medium, so normal speed concentration would not able to precipitate cells from RNAstore. Discard RNAstore after centrifugation. (HeLa cell need to be centrifuge at around 3000 × g, other cells may not able to tolerate this speed, or higher speed is required.)

   Direct extraction: Extract by adding 10 time volumes of RNA extraction buffer into cell-RNAstore mix.
3. For bacteria, first precipitate by centrifugation, then wash the pellet with PBS, then re-suspend with PBS and stored with 2 time volumes of RNAstore. Downstream RNA extraction procedures are same as procedures for cultured cells. *E. coli* could be stored in RNAstore for 1 month at 4°C without degradation of RNA.
4. For leukocyte, first separate leukocyte from serum and red blood cell, then follow the instruction of cultured cells. Do not store RNA from whole blood, serum and plasma into RNAstore, because their protein concentrations are too high which will form precipitate after the mix with RNAstore.