

## RNASafer™ Reagent

(Safe tissue RNA preservation agent)

### Introduction

RNA Safer Reagent is a safe tissue RNA protection agent. It can quickly penetrate into the cell, inactivate nuclease and protect RNA from degradation. Biological samples (tissues and cells) can be stored at room temperature (25°C) for one week, 4°C for one month, or -20°C / -80°C for long time by simply soaking in the reagent. RNA Safer Reagent is suitable for preserving various fresh biological samples, such as animal tissues, plant tissues, cultured cells, etc. Samples protected by RNA Safer Reagent can be more convenient for transportation and storage.

### Kit content

Contents	P8310
RNASafer™ Reagent	500 ml

### Storage

RNAsafer™ Reagent can be stored at room temperature for 18 months. If crystal precipitation occurs during storage, redissolve it in 55°C water bath.

### Note

- Only fresh samples can be used, cannot use frozen samples.
- Before immersing the sample in RNAsafer™ Reagent, it is necessary to process large pieces of sample into tissue blocks with side lengths less than <0.5 cm.
- The volume of RNAsafer™ Reagent shall be more than 10 times of the sample.
- After soaking the sample in RNAsafer™ Reagent, instead of stored at low temperature (-20°C or -80°C) immediately, it needs to be stored at 4°C overnight to allow RNAsafer™ Reagent to fully penetrate the tissue first.

### Usage

#### Preservation of animal tissue

Animal tissue needs to be cut into tissue blocks with a side length <0.5 cm, and immediately soaked in RNAsafer™ Reagent, no need to break up the tissue. Some small organs, such as the mouse kidney and spleen, can be stored entirely in the reagent.

#### Preservation of plant tissue

Some plant tissues have natural shielding, such as the paraffin layer on the leaves, which make it difficult to be penetrated. Therefore, it is necessary to cut plant samples into small pieces or homogenize them as much as possible to ensure that RNAsafer™ Reagent can penetrate into the tissue. Most plant samples can be directly soaked in the reagent.

#### Cultured cells

Centrifuge the cultured cells, remove the culture medium, and then add 5-10 times the volume of RNAsafer™ Reagent.

#### Blood or plasma

The isolated white blood cells can be directly preserved in the RNAsafer™ Reagent.

#### Yeast

Centrifuge to collected  $3 \times 10^8$  yeast cells. Discard the culture medium, immediately add 0.5~1 ml RNAsafer™ Reagent, and vortex to resuspend the cells. Yeast cells can be stored at 25°C for 8 hours, 2~8°C for one week. For long-term preservation, after vortex place at room temperature for 1 hour, then centrifuge at 12000 x g for 5 minutes, discard the preservation solution, quick frozen in liquid nitrogen, and transferred to -80°C.

#### Bacteria

Centrifuge to collect bacteria, discard the culture medium, Escherichia coli can be stored in RNAsafer™ Reagent at 2-8 °C for 1 month.

## Preservation temperature and time

### ◡ - 80 °C

After soaking the sample in RNASafer™ Reagent, place it overnight at 2-8°C to allow RNASafer™ fully penetrate into the sample, and then transfer to -80°C for long-term storage. Since the Reagent freeze at -80°C, it is recommended to remove the Reagent before transfer to - 80°C for storage. Repeated thawing does not affect the integrity of RNA.

### ◡ - 20 °C

After soaking the sample in RNASafer™ Reagent, place it overnight at 2-8 °C to allow RNASafer™ fully penetrate into the sample, and then transfer to - 20°C for long-term storage. The Reagent does not freeze at -20°C, while salt crystals precipitate, but it will not affect. Repeated thawing does not affect the integrity of RNA.

### ◡ -2-8°C

After soaking in RNASafer™ Agent, most samples can be stored at 2-8°C for one month.

### ◡ 15-25°C

We recommend storing samples at low temperature. If the room temperature exceeds 25°C, it had better to precool the RNASafer™ Reagent on ice, then immerse the sample into the Reagent, place it on ice for a few hours and transfer to room temperature. Most samples can be stored at 15-25°C for one week.

### ◡ >25°C

Precool the RNASafer™ Reagent on ice, then immerse the sample into the Reagent, place it on ice for a few hours and transfer to room temperature. Most samples can be stored at 37°C for only one day.

## RNA extraction

### Solid samples

Use tweezers to take out the sample from the RNASafer™ Reagent and use absorbent paper to absorb the waste liquid. Then, directly immerse the sample in RNA extraction or lysis solution, homogenize by machine. It can be used in one step extraction reagents such as MagZol Reagent, or Trizol Reagent, or silica gel column purification kits such as Magen Total RNA Kit, RNeasy Mini Kit, etc.

### Cell Samples

After cells are soaked in RNASafer™ Reagent, there are two methods to extract RNA. The best method is to collect cells by centrifugation, remove the RNASafer™ Reagent, and then extract total RNA. In addition, it is also possible to directly extract RNA from RNASafer™ Reagent. Due to the low cell density, more lysate is required in the extraction.

1. **Centrifuge to collect cells and remove RNASafer™ Agents:**  
Due to the high density of RNASafer™ Agents, greater centrifugal force is required to fully collect cells than under conventional conditions. On the other hand, RNASafer™ Reagent has a fixation effect on cells, which prevent cells from lysis while increasing centrifugation speed. Most cells require 5000xg centrifugation for 10 minutes. Or add an equal volume of cold Buffer PBS to dilute the preservation solution, and then centrifuge at a normal speed to collect them.
2. **Direct extraction:** When using one-step extraction reagents such as MagZol Reagent, MagZol LS Reagent, or Trizol Reagent, total RNA can be extracted directly from RNASafer™ Reagent.