CYRN15-RNAfixer Stabilization Solution

Cat#	Size
CYRN1501	50ml
CYRN1502	100ml

Product Storage and Stability:

The transparent liquid can be stored at room temperature (18-25°C) for 12 months. If precipitation or separation is observed when using the product, it can be heated at 37°C to dissolve it before use, without affecting the quality of the product.

Product Introduction:

Suitable for animal tissues (heart, liver, kidney, muscle, testis, brain, spleen, etc.), cultured cells, RNA viruses, fruit flies, bacteria, leukocytes, whole blood, and some plant tissues, etc.

RNAfixer is an aqueous and non-toxic tissue preservation solution that can quickly penetrate the cytoplasm of fresh tissue cells, stabilizing and protecting the RNA in situ in a non-frozen state. Immersion of tissue sections in RNAfixer immediately after removal does not affect the quality and quantity of RNA extraction in the future. RNAfixer eliminates the inconvenience of immediate processing or liquid nitrogen preservation of RNA samples. After immersion in RNAfixer, RNA in fresh tissue cells can be well preserved at 37°C for one day, one week at 25°C, one month at 4°C, and long-term preservation at -20°C or -80°C. RNA virus samples (such as HCV and HIV) can be stored at 37°C for one month.

Product Features:

1. **Easy operation**: Simply cut the tissue into appropriate sizes and immerse it in RNAfixer to prevent RNA degradation.
2. **No need for liquid nitrogen**: Sample preservation does not require liquid nitrogen, dry ice, or -80°C freezers, making it especially suitable for rapid and large-scale collection of clinical and field samples.
3. **Convenient transportation**: Processed samples can be stored at 25°C for one week, making sample shipping and transportation easy and cost-effective, facilitating academic collaborations and exchanges.
4. **Multiple freeze-thaw cycles**: Samples treated with RNAfixer can be repeatedly frozen and thawed, and various treatments can be performed on the samples during

this period without affecting the quality of the RNA extracted at the end.

5. **Strong comparability**: RNAfixer can reduce errors in large-scale sample processing, increase the comparability between multiple experiments, and is especially useful for the analysis of large-scale gene expression profiles.
6. **Wide compatibility**: Various total RNA extraction reagents can be used to extract RNA from samples stored in RNAfixer. It can also be used directly for tissue sections, immunology, and flow cytometry analysis without affecting the quality of RNA extraction.

How to Use RNAfixer:

RNAfixer is only used for fresh tissue, and **freezing of tissues is prohibited** before immersion in RNAfixer. Simply cut the fresh tissue into a size where one side has a thickness of <0.5 cm and immerse it in RNAfixer (as long as one side is not thicker than 0.5 cm, RNAfixer can quickly penetrate, and the dimensions of the other two sides are not critical). Immerse the fresh tissue in RNAfixer at a 5-fold volume and store at the appropriate temperature according to the instructions.

1. Animal tissues:

RNAfixer does not disrupt or dissolve tissue structures, so tissues that have reached osmotic equilibrium in RNAfixer can be removed from RNAfixer, further cut into smaller pieces, and then returned to RNAfixer for future use. Small organs such as mouse liver, kidney, and spleen do not need to be cut and can be stored intact in RNAfixer.

2. Plant tissues:

Many plant tissues can be directly immersed in RNAfixer, while some plants have natural permeability barriers such as wax protective layers, which need to be disrupted first to facilitate the penetration of RNAfixer.

3. Tissue culture cells:

After cell detachment, collect the cells by centrifugation, discard the supernatant, wash once with ice-cold PBS buffer to remove residual culture medium. Suspend the cells in a small amount of PBS buffer. Add five to ten times the volume of RNAfixer and mix well.

4. Blood and plasma:

Leukocytes separated from red blood cells and serum can be stored similar to tissue culture cells. RNAfixer can also preserve anticoagulated whole blood, serum, and plasma. For whole blood, add three times the volume of RNAfixer and mix well.

5. Yeast:

Collect $3x10^8$ cells by centrifugation (>12,000g for two minutes) and immediately resuspend the cell pellet in 0.5-1 ml of RNAfixer. Yeast cells can be stored in RNAfixer at 25°C for 8 hours or at 4°C for one week. For longer storage, place the yeast cells in

RNAfixer for one hour, centrifuge again at >12,000g for 5 minutes, and then immediately freeze the yeast cell pellet in liquid nitrogen and store at -80 °C.

6. Bacteria:

Bacteria do not grow in RNAfixer, but RNAfixer does not destroy bacteria. E. coli can still yield intact RNA even after being stored at 4°C for one month.

Storage of Samples in RNAfixer:

1. Storage at -80℃:

For long-term storage of document samples. Place the sample in RNAfixer at 4 °C overnight, then remove the sample, remove as much RNAfixer liquid as possible, and then place it at -80 °C. For tissue culture cells, RNAfixer does not need to be removed, and it can be frozen directly at -80 °C, which does not break the cells. The sample can be thawed at room temperature when used, and it can also be frozen again without affecting the integrity and yield of RNA.

2. Storage at -20℃:

After overnight storage at 4℃ in RNAfixer, transfer the samples to -20℃. The samples at -20℃ are not frozen but may form some crystals, which do not affect future RNA extraction. When using the samples, they can be thawed at room temperature, and they can be refrozen again without affecting the integrity and yield of RNA.

3. Storage at 4℃:

Samples can be stored at 4℃ for one month.

4. Storage at 25℃:

RNA in samples stored at 25℃ remains intact within one week. Samples stored for two weeks show slight degradation and can be used for northern analysis with some compromise, but the quality is sufficient for nuclease protection assay or RT-PCR analysis.

5. Storage at 37℃:

RNA in samples stored at 37℃ remains intact within 24 hours but experiences partial degradation after three days.

RNA Extraction from Samples Preserved in RNAfixer:

Remove the samples from RNAfixer. RNAfixer can be directly poured down the sink and rinsed with tap water without special treatment.

1. Tissues:

Use clean tweezers to remove the sample from the RNAfixer, and then use absorbent paper to gently absorb the remaining RNAfixer. Then, follow the standard procedure of liquid nitrogen grinding and then homogenization to extract RNA, just like fresh tissue.

2. Cells:

There are two options for extracting RNA from cells stored in RNAfixer. One is to remove RNAfixer before RNA extraction, and the other is to directly extract RNA from the mixture of cells and RNAfixer.

A. RNA extraction after removing RNAfixer:

Cells stored in RNAfixer become less fragile and can withstand higher centrifugation speeds without lysis. We have successfully collected cells by centrifugation at 5000g, but the optimal centrifugation speed may vary for different cell types. It is recommended to perform a preliminary test with less important cells to ensure that centrifugation at the desired speed does not damage the cells. Another option is to dilute the mixture of RNAfixer and cells with an equal volume of PBS before centrifugation to reduce the density of the solution, allowing the cell pellet to settle.

B. Direct RNA extraction without removing RNAfixer:

Alternatively, you can directly add a one-step extraction reagent (such as TRIpure) in 10 times the volume to the mixture of cells and RNAfixer, and then proceed with the extraction following the normal steps.

This product is furnished for LABORATORY RESEARCH USE ONLY.
Not for diagnostic or therapeutic use.