Sample Protector for RNA

S766791

Storage: Store at room temperature, valid for one year.

Introduction:

Once a biological sample is collected, its RNA starts to become quite unstable. Rapidly stabilizing the RNA and maintaining its expression level are the primary conditions for obtaining accurate gene expression analysis data. Additionally, it is necessary to prevent the activation of gene expression upregulation or downregulation caused by sample processing.

The Sample RNA Protector is a liquid and non-toxic preservation reagent for animal tissues. It can rapidly penetrate into tissue cells, protect the RNA of non-frozen cells by efficiently inhibiting the activity of RNase, and prevent it from degradation. As a result, after obtaining the tissue sample, there is no need to process the sample immediately, nor to freeze the sample in liquid nitrogen, which makes subsequent experimental operations more convenient. Using the Tissue RNA Protector can eliminate the inconvenience of using liquid nitrogen or ultra-low temperature freezers. Moreover, storing tissue specimens from different batches in this protector can immediately terminate and fix the temporal changes in RNA expression, reducing the error between experimental groups.

The Sample RNA Protector can be widely applied to various vertebrate samples, including the brain, heart, kidney, spleen, liver, and lung. After immersing fresh non-frozen tissues in the Sample RNA Protector at a ratio of 1:10, the samples can be stored at 37°C for 1 day, at room temperature for 1 week, and at 4°C for 1 month. After soaking the tissues at 4°C, they can be stored for a long time at -20°C or -80°C.

Usage method:

1.Animal Tissues

1.1 Estimate the volume (or weight) of the tissue to be used before cutting the tissue, and take out the Sample RNA Protector according to the ratio of 1:10 (tissue: Sample RNA Protector) for use (for example, if the tissue amount is 100mg, 1ml of Sample RNA Protector is required. Reducing the ratio proportionally has no impact on the experimental results, and if increasing the ratio proportionally, the tissue needs to be cut into small pieces). If the tissue sample is too large, it is necessary to cut it into tissue blocks with a side length of less than 0.5cm × 0.5cm × 0.5cm before preservation. When preserving, it should be noted that the tissue blocks must be completely immersed in the protective solution. Note: The dosage of the Sample RNA Protector should be at least 10 times the volume (or weight) of the tissue.

1.2 For long-term storage at -80°C: Incubate the sample together with the Sample RNA Protector at 2~8°C overnight, then take out the sample and store it at -80°C. For cultured cells, the Sample RNA Protector containing the cells can be directly frozen. When using the sample, thaw it at room temperature.

1.3 For long-term storage at -20°C: Incubate the sample together with the Sample RNA Protector at 2~8°C overnight, and then transfer it to -20°C. The sample immersed in the Sample RNA Protector may not freeze at -20°C. Low-temperature storage may cause the solution to form crystals or precipitates, which will not affect the protection effect of RNA and the subsequent purification of RNA. If you are concerned that the crystals will affect subsequent experiments, you can take out the sample before freezing and then store it frozen.
1.4 For short-term storage at 2~8°C: Incubate the sample together with the Sample RNA Protector at 2~8°C, and it can be stored for one month.

2.Plant Tissues

Plant tissues can be immersed in 10 times the volume of the Sample RNA Protector. Due to the complexity of plant tissues, it is not necessarily suitable for all tissues. Plant tissues have a natural barrier that prevents diffusion. For example, the wax on the surface of the leaves needs to be broken to allow the Sample RNA Protector to penetrate into the tissues. Any method of breaking the wax can be used, such as cutting or physical tearing. The storage method is as described above.

3.Cultured Cells

Precipitate the cells using the standard laboratory procedure. Wash the cells with PBS to remove the culture medium. Resuspend the cells with a small amount of PBS and add 10 times the volume of the Sample RNA Protector. The storage method is as described above.

4.White Blood Cells

After separating white blood cells from whole blood, add the Sample RNA Protector according to the method for "cultured cells" to preserve the white blood cells. White blood cells that have not been separated from whole blood cannot be preserved with the Sample RNA Protector because they contain a high concentration of proteins, and precipitation will form after adding the Sample RNA Protector. The storage method is as described above.

5.Bacteria

Add the Sample RNA Protector according to the method for "cultured cells" to preserve the RNA in Escherichia coli. The storage method is as described above.

Subsequent RNA Isolation Experiments

5.1 For tissue samples, use sterile forceps to take the sample out of the Sample RNA Protector and immerse it in the lysis solution for RNA isolation. For tissues, homogenize them rapidly.
Note: Storing the tissue in the Sample RNA Protector will make it harder, and homogenization will be a bit more difficult compared to fresh tissue. Cutting the tissue into small pieces with a scalpel will make homogenization easier.

5.2 For cell samples, the cells can be collected by centrifugation to remove the Sample RNA Protector, or RNA can be directly extracted from the mixture. Since the Sample RNA Protector has a higher density than the cell culture medium, the cells cannot be precipitated under normal centrifugal force. For example, for HeLa cells, a centrifugal force of 3000g can precipitate the cells.

5.3 If using a one-step method to extract RNA, such as using Trizol, during the extraction process, the aqueous phase may become hazy, similar to a cloudy state. This does not affect

the quality of RNA, and the RNA extraction can be continued according to the Trizol instruction manual.

Precautions:

1. The Sample RNA Protector may produce precipitates or crystal separation. It needs to be completely dissolved at room temperature or 37°C before use.
2. The Sample RNA Protector is only suitable for fresh animal tissues and cannot be used for frozen tissues.
3. The size of the tissue block requires that any side should not exceed 0.5cm. If the tissue is too large, it can be cut into small pieces first and then immersed in 10 times the volume of the Sample RNA Protector.
4. If the tissue stored in the Sample RNA Protector needs to be transported over a long distance, it is necessary to ensure that the tissue is completely immersed in the Sample RNA Protector during transportation.