

Overview

RNAdvantage is an aqueous, nontoxic tissue RNA stabilization and storage matrix that rapidly permeates tissues to stabilize and protect cellular RNA. Tissue samples can be harvested and submerged in RNAdvantage for storage without jeopardizing the quality or quantity of RNA obtained following RNA isolation. GenTegra RNAdvantage can be used for RNA preservation with most tissues, cultured cells, bacteria, and yeast. The amount of RNAdvantage used should be 5-10 times the volume of the sample. It will not be as effective in any sample that is difficult for the solution to permeate. RNAdvantage solution has been tested with animal tissues, including brain, heart, kidney, spleen, liver and lung. It is also effective for RNA preservation in white blood cells, and some plant tissues.

RNAdvantage Benefits

- ◆ Protect RNA in fresh tissue samples
- ◆ Allows sample handling at room temperature
- ◆ Field collection of samples without cold chain
- ◆ Flexible tissue collection and transport
- ◆ Animal tissue, cultured cells, bacteria, yeast

Sample Storage Conditions

Room temperature (15 – 25 °C)
Refrigeration (2 – 4 °C)
Frozen (–80 °C)

Protection*

7-14 days
2 months
> 1 year

* Average RINe values of ≥ 7

RNAdvantage Reference Workflow with Stabilization Step

Step 1: Organs are freshly harvested and a small sample, no bigger than 0.5mm by 0.5mm by 0.5mm, and is immediately placed into 0.625-1.0mL of RNAdvantage solution. Make sure the tissue sample is completely submerged in the solution. The thinner a tissue sample is the faster the RNAdvantage solution can quickly permeate the tissue and protect the RNA.

Step 2: Place the sample tube into refrigerator at 4°C overnight, approximately 14 hours. This allows the RNAdvantage to fully permeate the sample and protect the RNA. If refrigeration is unavailable, keep the sample tube in a ice bucket.

Step 3: Once the sample has been stabilized overnight the tissue sample in RNAdvantage is stable at room temperature for 7-14 days.

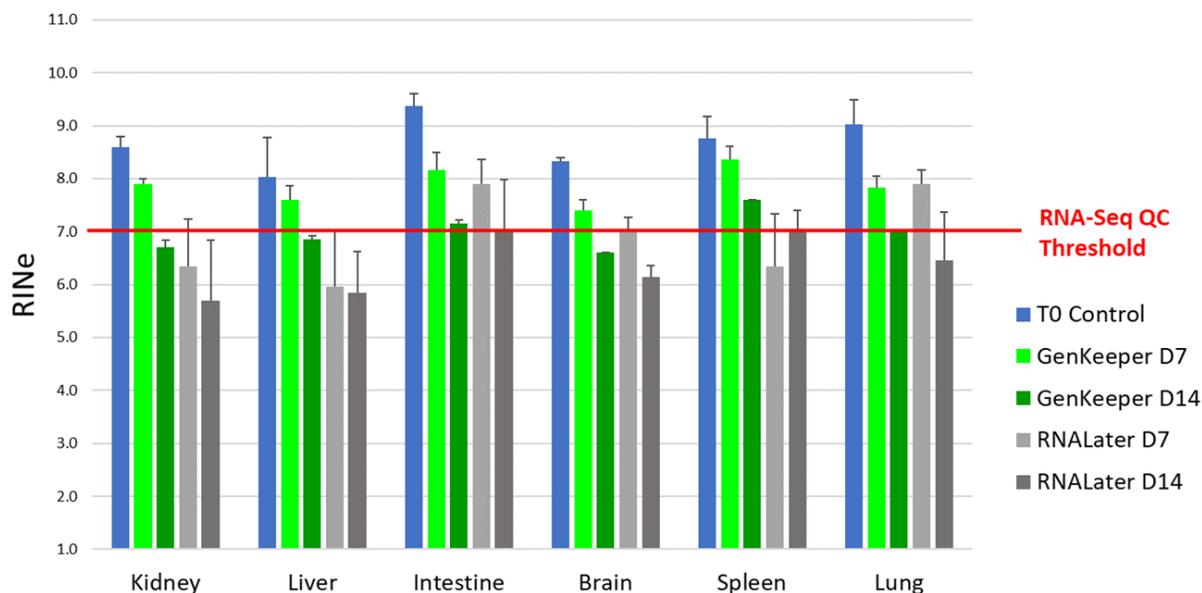
Step 4: Proceed to RNA extraction. Remove the tissue sample from the RNAdvantage solution, blot the tissue sample to remove excess solution and immediately begin RNA extraction following the instructions for your extraction and purification kit of choice.

Note: GenTegra routinely uses a Trizol based extraction and purification protocol. This protocol is available by contacting info@gentegra.com.

WARNING

RNAdvantage solution is known to react with hypochlorite solutions, such as common bleach. The reaction releases toxic chlorine gas, and is violent enough to generate heat. Similar reactions are expected from other oxidizing agents. If you suspect that samples may contain hypochlorite do not use RNAdvantage.

Room Temperature RNA Stability



Agilent TapeStation 4200 RINe scores for purified mouse tissue RNA samples following 7-day incubation at room temperature in RNAdvantage and RNAlater solution after the initial stabilization step of 14 hours at 4°C.

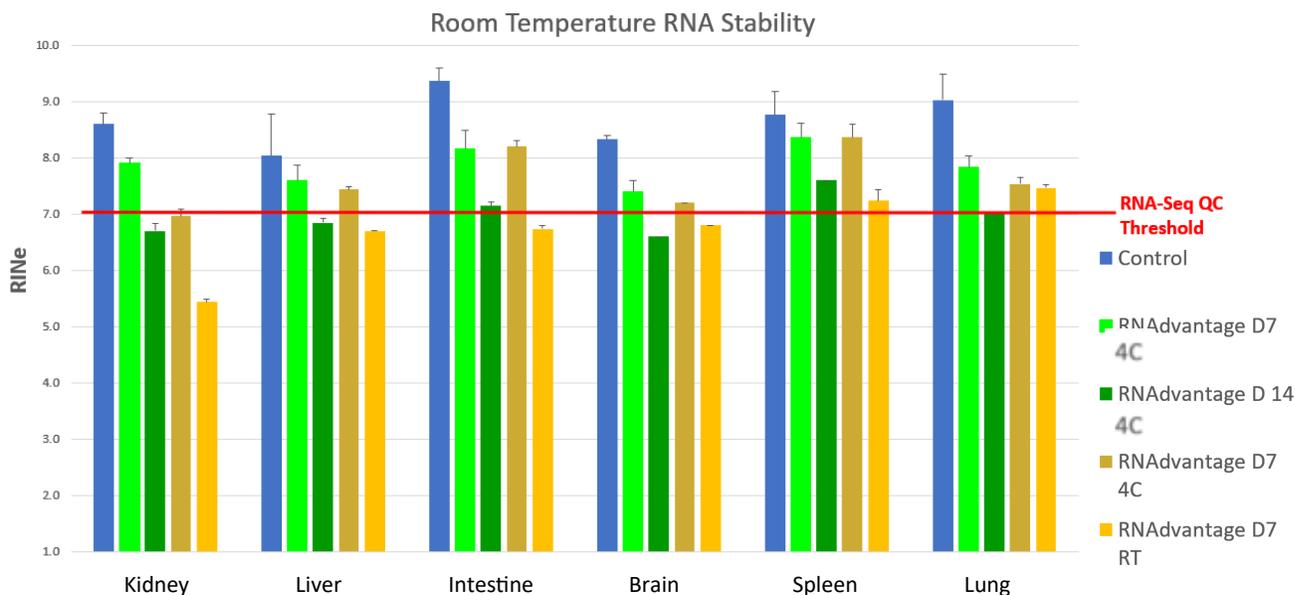
RNAdvantage Quick Ambient Workflow

When field collection makes it difficult to stabilize the sample at 4°C in RNAdvantage and an ice bucket is not an option, the 4°C stabilization step may be omitted and the samples immediately shipped or transported to the laboratory. Without the stabilization at 4°C for 14 hours the RNA in the tissue samples is protected for up to seven days and will still, on average, have a RINe value of ~7. and yield excellent RNAseq results. After seven days these samples should be frozen for longer storage.

Step 1: Organs are freshly harvested and a small sample, no bigger than 0.5mm by 0.5mm by 0.5mm, and is immediately placed into 0.625-1.0mL of RNAdvantage solution. Make sure the tissue sample is completely submerged in the solution. The thinner a tissue sample is the faster the RNAdvantage solution can quickly permeate the tissue and protect the RNA.

Step 2: The tissue sample in RNAdvantage is stable at room temperature for seven days at ambient, i.e. 25°C. After seven days freeze the sample.

Step 3: Proceed to RNA extraction. Remove the tissue sample from the RNAdvantage solution, blot the tissue sample to remove excess solution and immediately begin RNA extraction following the instructions for your extraction and purification kit of choice.



Agilent TapeStation 4200 RINe scores for purified mouse tissue RNA samples following 7-day incubation at room temperature in RNAAdvantage with and without the stabilization step of 14 hours at 4°C.

Storage and stability

- ◆ Store RNAAdvantage at room temperature, 22-25°C.
- ◆ Shelf life of RNAAdvantage at room temperature is 2 years.
- ◆ If precipitation of RNAAdvantage occurs, warm it to 37°C with agitation to redissolve it. When precipitate is redissolved the RNAAdvantage is ready to use.

Safety information

Read the Safety Data Sheet, and follow the handling instructions.

Wear appropriate protective eyewear, clothing, and gloves.

Disposal of excess RNAAdvantage Solution

Dispose of GenTegra RNAAdvantage Solution in accordance with local regulations.

RNA isolation from RNAAdvantage solution

GenTegra RNAAdvantage is compatible with most RNA isolation methods. Samples stored in RNAAdvantage Solution have been used successfully with TRIzol extraction. A Trizol extraction protocol that is optimized for RNAAdvantage treated samples is available from GenTegra. Request this protocol by emailing info@gentegra.com.

Product Specifications

- ◆ GenTegra RNAAdvantage is available in 100 mL bottle
- ◆ Stabilizes RNA in fresh tissue samples for 7 to 14 days at room temperature, 15- 25°C
- ◆ Suitable for protecting RNA from cell lines, whole blood, fresh tissues, and FFPE tissues
- ◆ Compatible with all downstream RNA purification kits
- ◆ Tissue sample size should not exceed 0.5mm by 0.5mm by 0.5mm
- ◆ Typical RIN values will be ≥ 7 after 7-day at room temperature (15-25°C)

Frequently Asked Questions

Q What is the composition of RNAdvantage?

A The composition of GenTegra RNAdvantage is proprietary but can be considered similar to Thermo-Fisher's RNAlater®.

Q Can I use the tissue in GenTegra RNAdvantage be used directly for RNA extraction?

A Yes, the tissue is simply removed from the solution, blotted to remove any excess solution and can be used directly following the instructions for the RNA purification protocol.

Q What do I do if my tissue sample floats in RNAdvantage?

A The density of the RNAdvantage solution may be higher than the tissue sample causing it to float. Gently invert the tube till the RNAdvantage can permeate the tissue sample sufficiently to allow the sample to sink into the solution.