GenTegra®

RNA Protection from Beginning to End

GenTegra RNAdvantage™

Collecting RNA from fresh tissue samples has always been preferred to frozen or embedded FFPE samples. Solutions like RNAlater® have enabled fresh tissue to be utilized for transcriptome profiling, but do not always provide sufficiently high-quality RNA. GenTegra RNAdvantage is a non-toxic solution that permeates tissue samples easily to better stabilize the RNA and yield RIN values ≥ 7.

RNAdvantage consistently yields RNA with RIN scores that are ≥ 1 better than RNAlater. More importantly, the RIN values when using RNAdvantage are at or above the desired RIN value of ≥7, ensuring excellent RNAseq results. Why risk having your RNA extraction rejected for RNAseq because the RIN number is too low? By using RNAdvantage your RIN number will meet or exceed the required RIN number for RNAseq. Furthermore, RNAseq data is unaffected by using RNAdvantage when compared to the fresh frozen control.

Using RNAdvantage is simple and easy, just drop your tissue sample into a 5-10 times volume excess (0.625mL -1.25mL) to the solution and the sample protection begins immediately. Following storage and shipment in RNAdvantage, the tissue sample is removed and processed as you would any tissue sample for extracting the RNA that will be of the highest quality.

Benefits

- RIN values ≥ 7 for most tissues
- Rapid RNase inactivation
- No rtPCR inhibition
- Reliable RNAseq data

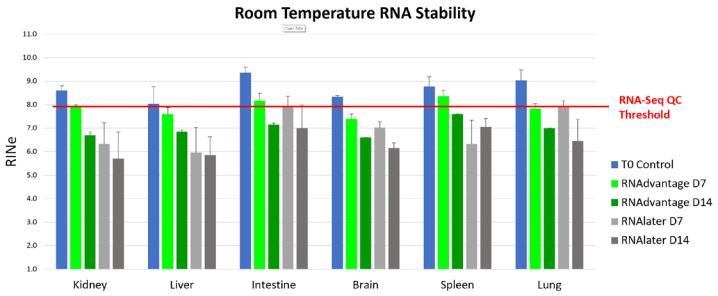


Figure 1: Agilent TapeStation 4200 RINe scores for purified mouse tissue RNA samples after 7-day incubation at room temperature in RNAdvantage and RNAlater solution.

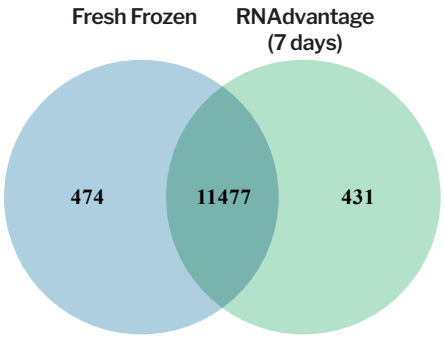


Figure 2: Co-expression Venn diagram difference between a fresh frozen liver controls and samples treated with RNAdvantage and held at room temperature for 7-days. The data shows no significant difference between the two in RNAseq results above natural variation.

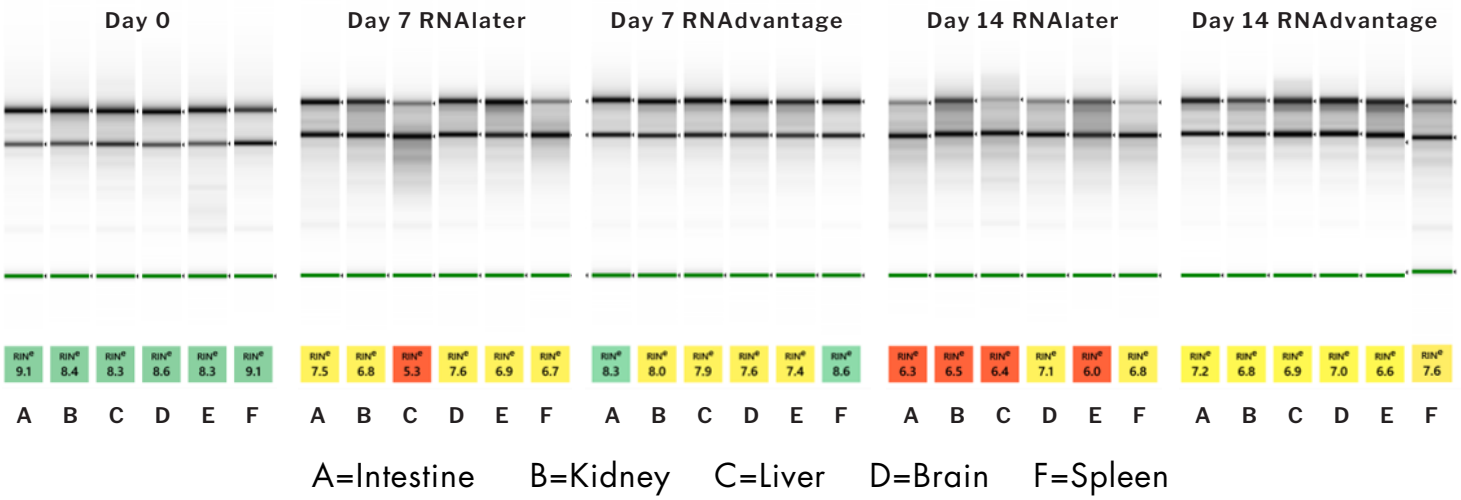
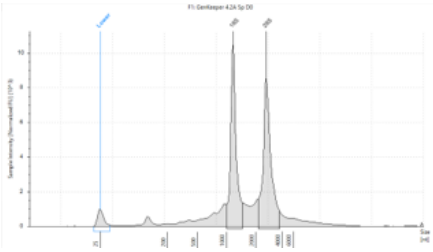


Figure 3: Agilent TapeStation 4200 gel images of purified mouse tissue RNA samples after 7 and 14-day incubation at room temperature in RNAdvantage or RNAlater solution.

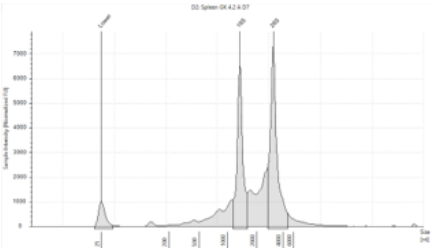
RNA Integrity

The ratio of the 18s peak to the 28s peak is another metric for RNA integrity. Over an assortment of six different tissue types, the ratios for 28/18 were consistently better for RNA tissue samples protected with RNAdvantage at 14 days then for RNAlater protected samples at 7 days (data available upon request). As an example, spleen tissue showed essentially no change between 7 days and 14 days at room temperature after stabilization in RNAdvantage. The spleen sample saw its ratio value improved after 7-days. Although the peak ratios are based upon peak areas reported by the TapeStation, the effect can also be seen by comparing the peak heights in figure 4 below.

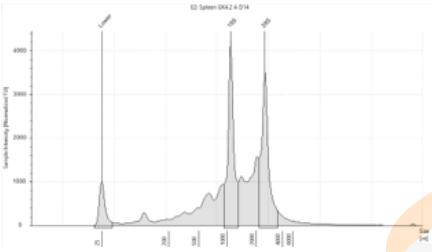
D0 Spleen



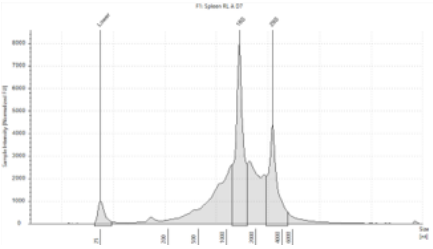
D7 RNAdvantage Spleen



D14 RNAdvantage Spleen



D7 RNAlater Spleen



D14 RNAlater Spleen

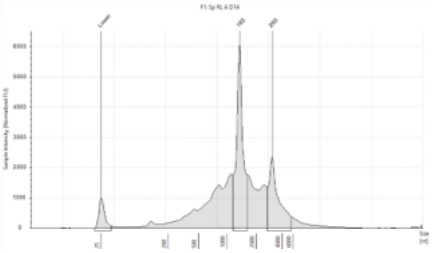


Figure 4: RNAdvantage protects RNA from degradation during short exposures to RT. Agilent TapeStation 4200 electropherograms (EPGs) for purified mouse spleen RNA samples after 7 and 14-day incubation at room temperature in RNAdvantage or RNAlater solution.

RNA Protection from Beginning to End

GenTegra offers a suite of products for RNA protection:

- **RNAdvantage** for protecting RNA in fresh tissue samples
- **RNAssure™** for purified RNA, providing protection as the RNA is eluted
- **GenTegraRNA™** for safely shipping or storing RNA at room temperature

RNAdvantage Specification	Product Performance
RNA quality	RIN > 7 for samples stored at room temperature (22C°) for 7-days RIN > 6.5 for samples stored at 22C° for up to 14-days Stable RIN number when frozen at -20C° for years
Solution	Non-toxic, aqueous solution safe for transport and shipping
Shelf life	3-years at room temperature
Tissue types	Any soft tissue cut to 0.5mm maximum width

GenTegra

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