

# High Quality RNA from Preserved Blood

## Agencourt RNAdvance Blood System

RNA extraction from RNA-stabilizing blood collection tubes

Built on Agencourt Solid Phase Reversible Immobilization (SPRI) paramagnetic bead-based technology, the Agencourt RNAdvance Blood system is a ribonucleic acid (RNA) isolation process. It enables the life science community to purify high quality RNA from blood collected using PAXgene\* tubes. The kit is formatted to process one 96-well plate in about 3.5 hours.

### Key Features:

- Produces high quality nucleic acid
- Compatible with downstream gene expression analysis techniques such as qRT-PCR<sup>†</sup> and microarray
- Amenable to automated processing on the Beckman Coulter Biomek NX<sup>P</sup> Span-8 Laboratory Automation Workstation
- No use of vacuum filtration or organic extraction

### No Detectable gDNA

Total RNA extracted from PAXgene-preserved blood using the Agencourt RNAdvance Blood kit is free of detectable gDNA. The absence of an amplification product in the -RT negative control confirms that genomic DNA was not present in the total RNA and would indicate that the subsequent amplification was from cDNA only (Figures 1A and 1B).

### Superior Yield and Quality

In the study shown, the Agencourt RNAdvance Blood kit produced about 700 ng of RNA per 400  $\mu$ L of PAXgene blood which equates to almost 17  $\mu$ g of RNA per tube of PAXgene-preserved blood. By using the Agencourt SPRI paramagnetic bead-based process, the Agencourt RNAdvance Blood system recovered over 30% more RNA than the PAXgene Blood RNA kit (Figure 2), while demonstrating consistent purity.

### Better Recovery in Less Time

The Agencourt RNAdvance Blood system yields significantly more nucleic acid than competitive approaches. When an exogenous RNA transcript was spiked into a PAXgene blood sample and compared to the PAXgene Blood RNA kit, Ct values obtained indicated that the Agencourt RNAdvance Blood-purified samples had a higher recovery of the transcript across high, medium, and low abundance levels (Figure 3). Not only is there more starting material, but the time to complete the Agencourt RNAdvance Blood extraction protocol is nearly one third that of the PAXgene Blood RNA kit (Figure 4).

Genomics

Proteomics

Cell Analysis

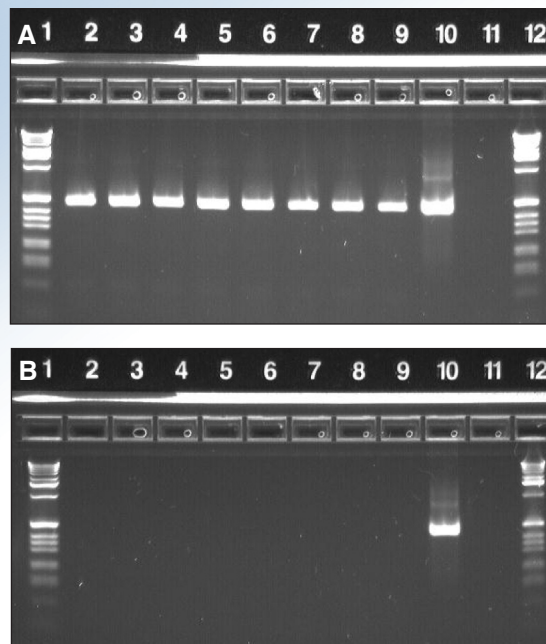
Particle Characterization

Centrifugation

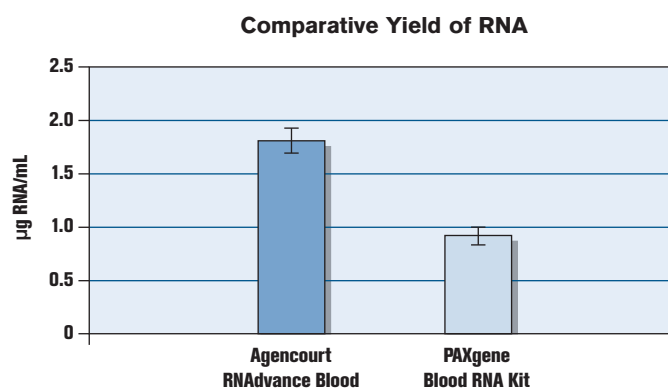
Lab Automation

Bioseparation

Lab Tools

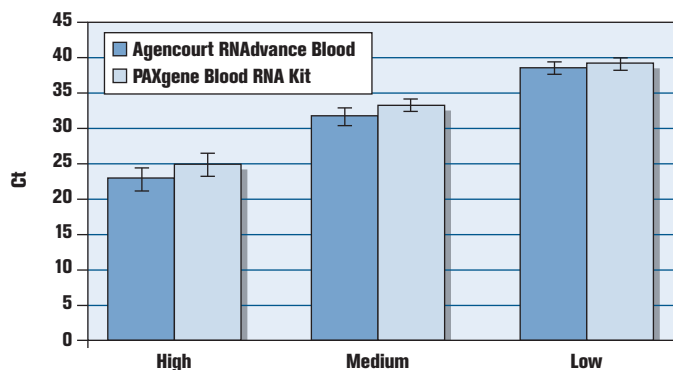


**Figure 1.** Lanes 1 and 12 contain a 1 kb ladder, lane 10 contains the positive PCR control, and lane 11 contains the negative PCR control. A: Lanes 2-9 contain RT positive reactions. B: Lanes 2-9 contain RT negative reactions. (PCR: amplicon is 471 bp region of the human beta actin gene, 35 cycles.)



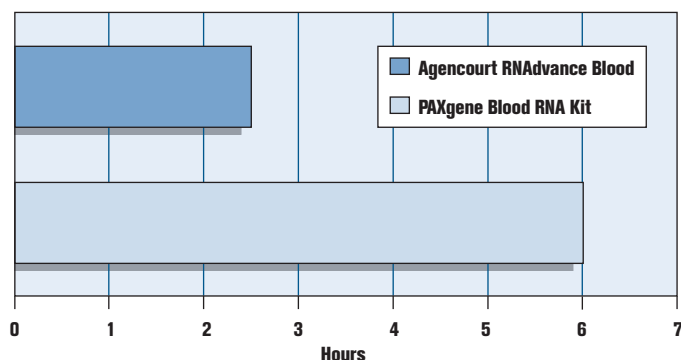
**Figure 2.** Average RNA yield (in  $\mu$ g/mL) from 24 400  $\mu$ L PAXgene-preserved blood samples extracted with the Agencourt RNAdvance Blood kit and 9.4 mL of PAXgene-preserved blood extracted with the PAXgene Blood RNA kit. Average 260/280 ratios across the 24 extractions performed using Agencourt RNAdvance Blood was 1.8 with a Standard Deviation of 0.13 and %CV of 7.24. The elution volume for the Agencourt RNAdvance Blood extraction was 20  $\mu$ L.

### qRT-PCR on Exogenous RNA Transcript



**Figure 3.** An exogenous RNA transcript was spiked into a PAXgene blood sample to examine the extraction efficiency of high (25,000 copies/ $\mu$ L), medium (250 copies/ $\mu$ L), and low (2.5 copies/ $\mu$ L) RNA transcript concentrations. Eight replicates were performed at each concentration for both Agencourt RNAdvance and the PAXgene Blood RNA kit extractions. qRT-PCR using Cybergreen<sup>†</sup> and primers specific for the exogenous RNA transcript were used for detection.

### Extraction Time for 10 mL



**Figure 4.** Time for extraction protocol to be completed for 10 mL of PAXgene-preserved blood.

### Kit Components

- Lysis Buffer
- Bind I Buffer
- Bind II Buffer
- Wash Buffer
- Proteinase K
- Proteinase K Buffer



### Ordering Information

For more information, please visit our website at [www.beckmancoulter.com](http://www.beckmancoulter.com) or contact your local sales representative.

| Product                               | Size      | Product # |
|---------------------------------------|-----------|-----------|
| Agencourt RNAdvance Blood Kit - Small | 50 preps  | A35603    |
| Agencourt RNAdvance Blood Kit - Large | 384 preps | A35604    |

| Related Products                            | Size                   | Product # |
|---|------------------------|-----------|
| Agencourt SPRIPlate Ring Super Magnet Plate |                        | A32782    |
| Agencourt SPRIStand - Magnetic 6-tube Stand |                        | A29182    |
| Agencourt RNAdvance Cell v2 Kit - Large     | 960 preps <sup>†</sup> | A47943    |
| Agencourt RNAdvance Tissue Kit - Medium     | 96 preps               | A32649    |
| Agencourt FormaPure Kit - Medium            | 96 preps               | A33342    |
| Agencourt RNAClean Kit - 60 mL              | 175 preps              | A29168    |

<sup>†</sup> 96-well format or tube format with  $1 \times 10^6$  cells.

\* Trademarks are property of their respective owners.

† The PCR process is covered by patents owned by Roche Molecular Systems, Inc., and F. Hoffman-La Roche, Ltd.

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