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**Technical Note**  
**PAXgene® Blood RNA System**

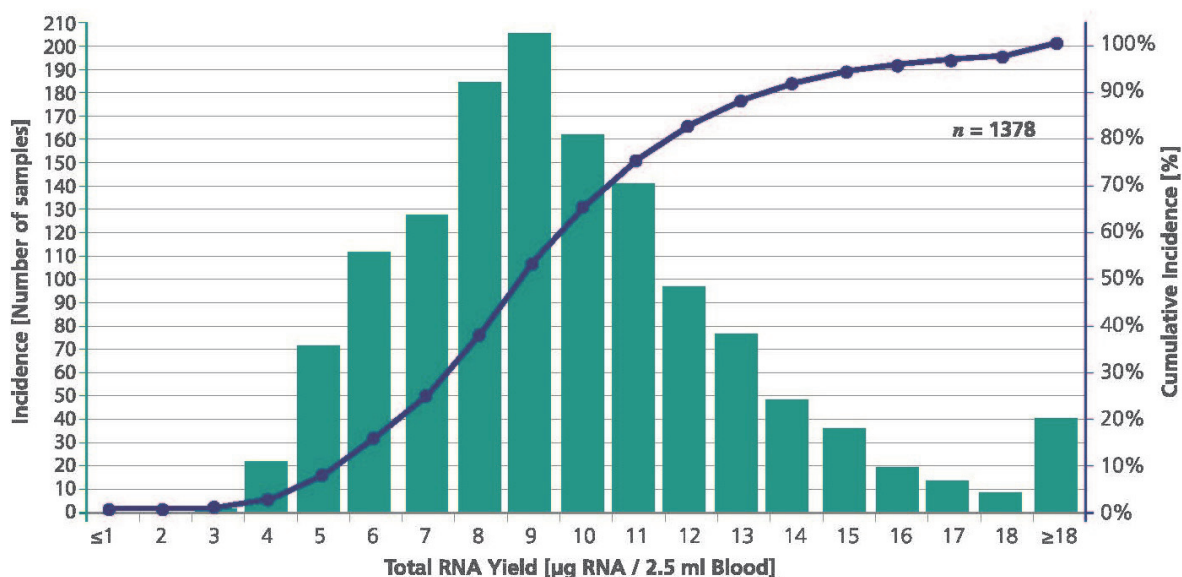
**Typical RNA Yields from PAXgene Blood RNA Tubes processed with the  
PAXgene Blood RNA Kit**

**Study Design**

Whole blood was collected into multiple PAXgene Blood RNA Tubes from each of 200 apparently healthy, consented adult subjects. For this study, RNAs from a total of 1378 specimens were extracted and analyzed. While specimens collected in PAXgene Blood RNA Tubes were used for different studies, all specimens were stored according to specification of the PAXgene Blood RNA Tube: up to three days at room temperature, up to five days at 2–8°C, or frozen for several months at –20°C or –80°C. Total RNA from the samples was extracted following instructions in the PAXgene Blood RNA Kit Handbook. RNA was extracted using the manual protocol for approximately 54 percent of all specimens while the remaining specimens (46%) were processed using the QIAcube®<sup>1</sup>. The concentration of RNA in extraction eluates was determined by measuring the absorbance at 260 nm ( $A_{260}$ ) in a spectrophotometer and using the relationship: 1 absorbance unit at 260 nm = 44  $\mu\text{g}$  of RNA per ml. RNA yield is expressed as  $\mu\text{g}$  RNA per 2.5 ml whole blood (data on file at QIAGEN GmbH, Hilden, Germany).

**Results**

For 1378 specimens collected in PAXgene Blood RNA Tubes, stored under various conditions and extracted with the PAXgene Blood RNA Kit, the yield per specimen for most (99.8%) specimens was  $\geq 3.0 \mu\text{g}$  RNA per 2.5 ml blood (Figure 1). Tables 1 and 2 summarize the yield statistics of this study. The large majority of specimens (81.3%) yielded between 6.0 and 18.0  $\mu\text{g}$  of RNA, while 3.0% of the specimens yielded over 18.0  $\mu\text{g}$  of RNA/tube.



**Figure 1. Distribution of total RNA yields from PAXgene Blood RNA Tubes.** Total RNA yield was determined from each of 1378 blood samples collected into PAXgene Blood RNA Tubes. The tubes were stored under different conditions according to product specifications. RNA was extracted either manually or using the QIAcube following the protocol of the PAXgene Blood RNA Kit Handbook. RNA yield ( $\mu\text{g}/2.5$  ml blood) is depicted for individual specimens (Incidence) and as a percentage of the total (Cumulative incidence).

**Table 1. Summary statistics for the yield of RNA from 1378 blood samples**

Statistic	Yield ( $\mu\text{g RNA}/2.5$ ml blood)
Min	2.8
Max	25.7
Mean $\pm$ standard deviation	$9.3 \pm 3.5$
Median	8.8
95% upper and lower quantile range	4.1 – 18.3

**Table 2. Cumulative statistics for the yield of RNA from 1378 blood samples**

Yield ( $\mu\text{g}$ RNA/2.5 ml blood)	Absolute and relative number of samples	Cumulative incidence (%)
<3.0	3 (0.2%)	0.2
$\geq 3.0$ to $\leq 6.0$	213 (15.5%)	15.7
$> 6.0$ to $\leq 18.0$	1121 (81.3%)	97.0
$> 18.0$	41 (3.0%)	100.0

### **Conclusion**

We have demonstrated that in a large study of 1378 specimens collected in PAXgene Blood RNA Tubes and processed with the PAXgene Blood RNA Kit, the RNA yields from whole blood were  $\geq 3 \mu\text{g}$  RNA/2.5 ml blood for all specimens (100%), when values are rounded to the nearest integer, regardless of tube storage conditions or whether a manual or automated processing method was used. For 95% of the samples, the yield was in the range of 4–18  $\mu\text{g}$  total RNA.

### **References**

1. Guenther, K. et al. 2007. Development and Optimization of a Protocol for Automated RNA Purification Using the PAXgene Blood RNA System. AACR.

**Products used:**

<b>Product</b>	<b>Catalog No.</b>
PAXgene Blood RNA Tubes (100)	762165
PAXgene Blood RNA Kit (50)	762164 (North America)
PAXgene Blood RNA Kit (50)	762174 (Other Countries)
QIAcube (QIAGEN)	9001882

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