

QIASymphony® PAXgene®

Blood RNA System

For collection of stable blood samples and purification of high-quality RNA for your downstream applications

The second-generation QIASymphony PAXgene Blood RNA Kit* provides flexible, fully automated, low- to medium-throughput purification of total cellular RNA, including miRNA, from human whole blood samples on the QIASymphony SP instrument (Figure 1). The system provides a complete preanalytical solution for collection and stabilization through to purification of high-quality RNA to support projects with variable throughput of samples, such as large research studies.

Unique benefits of the QIASymphony PAXgene Blood RNA system:

- Analysis of RNA as if it were still in the patient's body using gold-standard PAXgene Blood RNA Tubes
- Optimized purification of high-quality RNA, including miRNA
- Improved RNA yield — 8–16 µg and consistently high RIN values of 7–9
- Standardized, automated processing of 1–72 samples in batches of up to 24 samples each
- Loading capacity of 3 x 24 samples per run, 144 samples per day

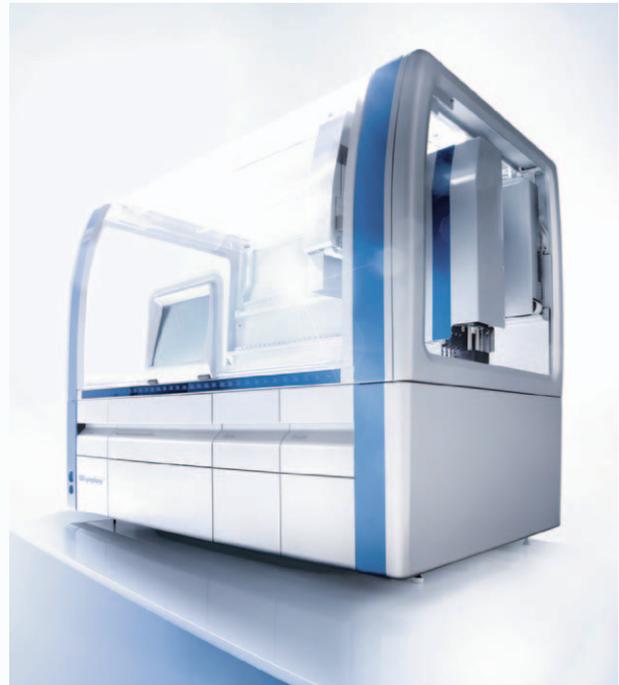


Figure 1. The QIASymphony SP instrument.

* The QIASymphony PAXgene Blood RNA Kit is intended for Research Use Only. Not for use in diagnostic procedures. No claim or representation is intended to provide information for the diagnosis, prevention, or treatment of a disease. The performance characteristics of this product have not been fully established.

Table 1. Noticeable advantages at every step

Handling features
Samples handled in original collection tubes
Clearly visible pellet minimizes risk of sample loss
One centrifugation run for all 72 tubes
Single centrifugation step
Prefilled, ready-to-use reagent cartridges
Instrument features
Processes original collection tubes
Automated bar code reading
Flexibility to process 1–72 samples per run
Onboard measures to prevent cross-contamination (drop catchers, UV lamp, segregation of used consumables)
Eluate cooling enabling overnight runs
Run report documents user ID, sample ID, expiration dates, etc.
Kit features
Everything in the kit (excludes instrument consumables)
Prefilled cartridges ready to use
Controlled shelf life studies
>5-year documented sample storage study

Integrated system for collection, stabilization, and automated low- to medium-throughput purification

Blood samples (2.5 ml) are collected in PAXgene Blood RNA Tubes. Samples may be stored or transported at room temperature if desired (1). The purification procedure begins with a centrifugation step to pellet the contents of each PAXgene Blood RNA Tube. After pellet resuspension the tubes are transferred to the QIASymphony SP instrument (2). After loading the reagent cartridge and setup of plasticware, guided and checked by the dedicated software, the QIASymphony SP instrument carries out the fully automated RNA purification procedure. Following purification, a final heat treatment of the eluate enhances performance in downstream applications. Total processing time is about 6 hours 15 minutes for 72 samples, including approximately 30 minutes of hands-on time. Using the eluate cooling function, up to 144 samples can be processed per day (Figure 2).

Table 2. High RNA yields with the QIASymphony PAXgene Blood RNA system

Mean RNA yield	14.2 µg
CV	12.1
Mean purity (A_{260}/A_{280})	2.1
Total failures	0
Samples tested	1367
Donors	176
Runs	19
Instruments	4

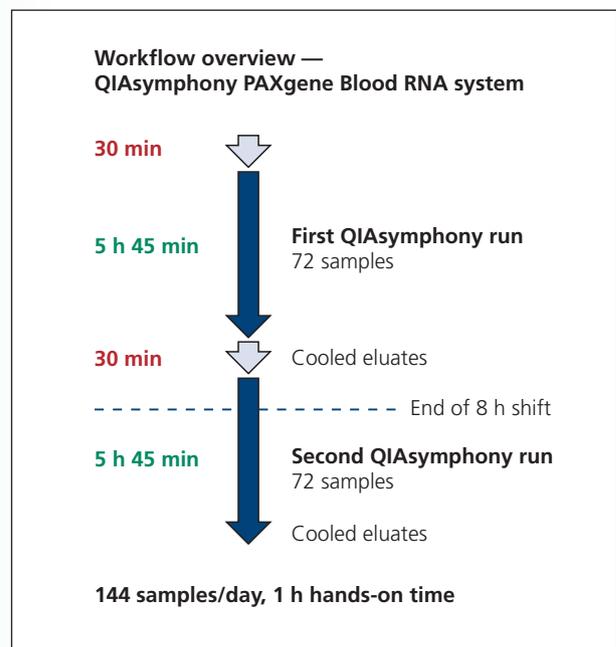


Figure 2. Workflow and throughput. Hands-on processing times are marked in red, automated processing times are marked in green.

High yields of high-quality RNA with no cross-contamination detected

The QIASymphony PAXgene Blood RNA procedure provides high-quality RNA (Figure 3) with high intra-donor repeatability.

The robust and standardized procedure, together with onboard measures of the QIASymphony SP instrument, are designed to minimize the risk of sample-to-sample cross-contamination (Figure 4).

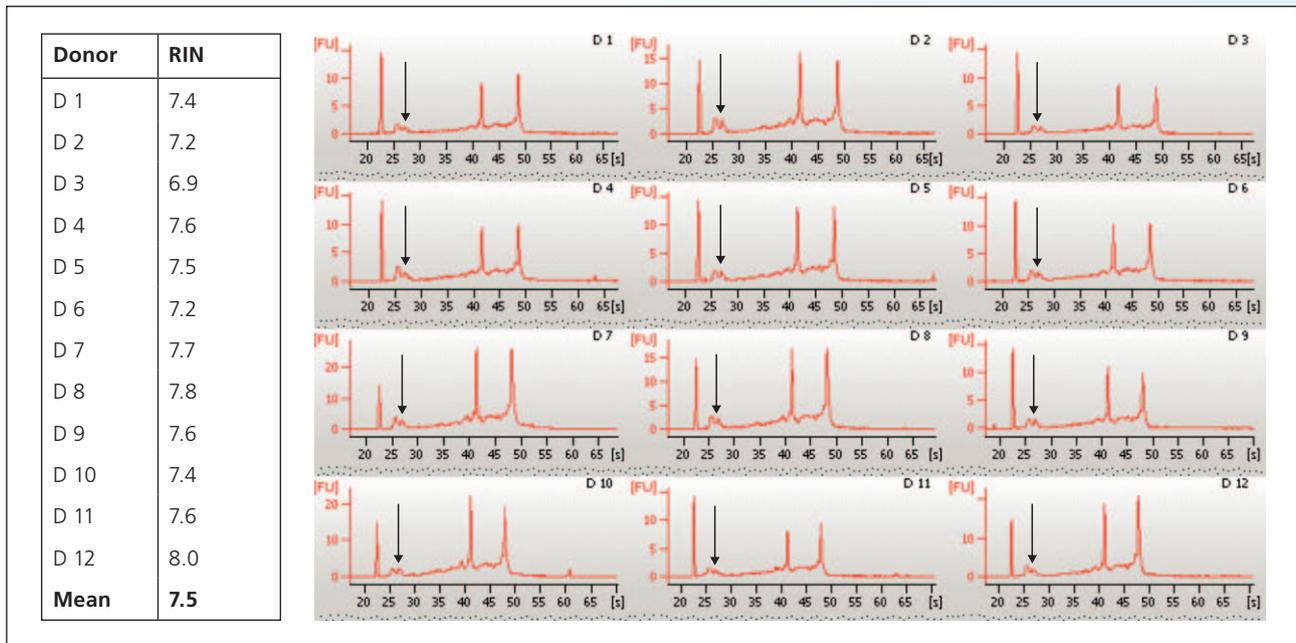


Figure 3. High-quality RNA from different donors. Blood was collected into PAXgene Blood RNA Tubes. RNA was purified using the QIASymphony PAXgene Blood RNA Kit on the QIASymphony SP instrument. RNA was analyzed with an Agilent® 2100 Bioanalyzer. The arrows indicate small RNA species (including miRNA). **RIN**: RNA integrity number.

Downstream applications

The purified RNA is ready to use in a wide range of downstream applications, including:

- Quantitative, real-time RT-PCR
- Expression array and chip analysis
- Next generation sequencing
- cDNA synthesis
- RNase and S1 nuclease protection
- Northern, dot, and slot blot analysis
- Primer extension

Batch 1	X	23.8	X	23.4	X	23.6
	24	X	24	X	23.5	X
	X	23.9	X	23.3	X	23.7
	24.4	X	36	X	22.7	X
Batch 2	X	23.8	X	23.6	X	23.2
	23.4	X	22.8	X	23.1	X
	X	23.6	X	22.6	X	22.4
	24.1	X	24.1	X	22.3	X
Batch 3	X	23.1	X	23.3	X	23.3
	23.7	X	23.3	X	23.6	X
	X	23.5	X	23.1	X	23.1
	23.1	X	22.2	X	22.9	X

Figure 4. No detectable cross-contamination. RNA was purified from blood collected in PAXgene Blood RNA Tubes (gray) or from water samples (white), arranged in a checkerboard pattern. All samples were analyzed by quantitative RT-PCR using primers and probe specific for the 18S rRNA, for 40 PCR cycles. Threshold cycle values (C_T) are indicated. **X**: No signal detected within 40 cycles.

Ordering Information

Product	Contents	Cat. no.
QIASymphony PAXgene Blood RNA Kit (96)	For 96 preps on the QIASymphony SP: 2 Reagent Cartridges,* Enzyme Racks, Accessories, and RNase-Free Buffers. To be used with PAXgene Blood RNA Tubes	762635
PAXgene Blood RNA Tubes (100)	100 Blood Collection Tubes; available from BD and BD authorized distributors	762165
QIASymphony SP	QIASymphony sample prep module, 1-year warranty on parts and labor	9001297
Sample Prep Cartridges, 8-well (336)	8-well sample prep cartridges for use with the QIASymphony SP	997002
8-Rod Covers (144)	8-Rod Covers for use with the QIASymphony SP	997004
Filter-Tips, 200 µl (1024)	Disposable Filter-Tips, racked; (8 x 128). For use with the QIASymphony SP	990332
Filter-Tips, 1500 µl (1024)	Disposable Filter-Tips, racked; (8 x 128). For use with the QIASymphony SP	997024
PAXgene 96 Incubator Block	Block for denaturation of eluates in PAXgene procedures	9238279

* Labeled with bar codes.

For up-to-date licensing information and product-specific disclaimers, see the respective PreAnalytiX or QIAGEN kit handbook or user manual. PreAnalytiX and QIAGEN kit handbooks and user manuals are available at www.qiagen.com or can be requested from QIAGEN Technical Services or your local distributor.

Discover the wide range of PAXgene products at www.PreAnalytiX.com!

References:

- Müller, M.C. et al. (2002) Improvement of molecular monitoring of residual disease in leukemias by bedside RNA stabilization. *Leukemia* **16**, 2395.
- Kruhoffer, M. et al. (2010) Evaluation of the QIASymphony SP workstation for magnetic particle-based nucleic acid purification from different sample types for demanding downstream applications. *J. Lab. Autom.* **15**, 41.

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