

RNeasy® Plus 96 Kit and RNeasy 96 Kits

For high-throughput RNA purification from cells in 96-well format

The RNeasy Plus 96 Kit and RNeasy 96 Kits provide high-throughput purification of total RNA from cultured cells grown in 96-well plates. The fast, standardized purification procedure delivers reproducible yields of high-quality RNA, ensuring extremely reliable results in real-time RT-PCR, microarray analysis, and other downstream applications.

Benefits of the RNeasy Plus 96 Kit and RNeasy 96 Kits:

- High-throughput RNA purification
- Fast, convenient sample processing
- Reproducible yields of RNA
- Highly standardized procedure

High-throughput RNA purification

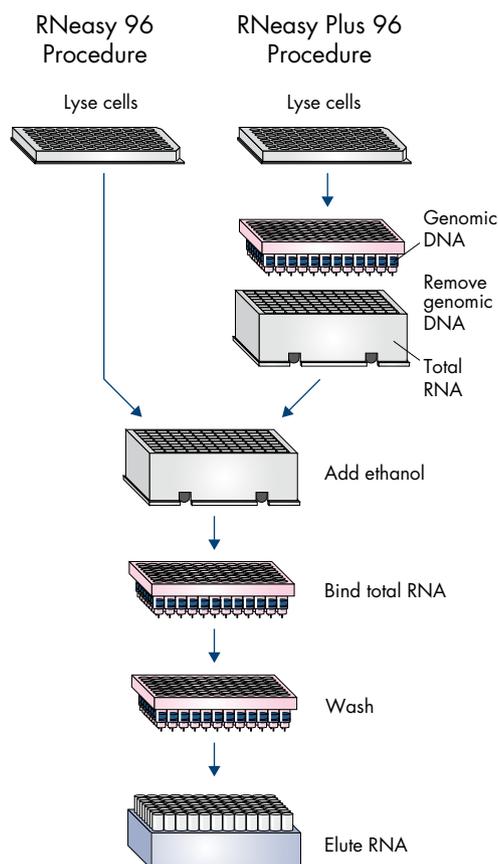
High-throughput RNA purification is achieved through the use of RNeasy 96 plates. These are specialized 96-well plates, with each well containing a silica membrane that specifically binds RNA from lysed cells. The ease with which RNA is purified in 96-well format makes the kits well suited for high-throughput gene expression analysis in areas such as drug discovery and biomedical research.

Fast, convenient sample processing

RNA purification using RNeasy 96 plates is manual or automated (Table 1), and comprises 3 simple steps: bind, wash, and elute. The plates are rapidly and conveniently processed using either a centrifuge or a combination of vacuum and centrifuge.† Alternatively, the purification procedure is fully automated on the BioRobot® Universal System.

Table 1. Different formats of RNeasy 96 purification

Kit	Procedure	Starting material	gDNA removal
RNeasy 96 Kit	Manual	≤ 5 × 10 ⁵ cells	Optional*
RNeasy 96 BioRobot 8000 Kit	Automated	≤ 5 × 10 ⁵ cells	Optional*
RNeasy Plus 96 Kit	Manual	≤ 2 × 10 ⁶ cells†	Yes



* Requires separate RNase-Free DNase Set (cat. no. 79254).

† Only half this amount is possible when processing plates using a vacuum and centrifuge instead of just a centrifuge.

‡ For processing of QIAGEN 96-well plates, the QIAvac 96 vacuum manifold and the QIAGEN® 96-Well-Plate Centrifugation system are available (see back page for ordering information).

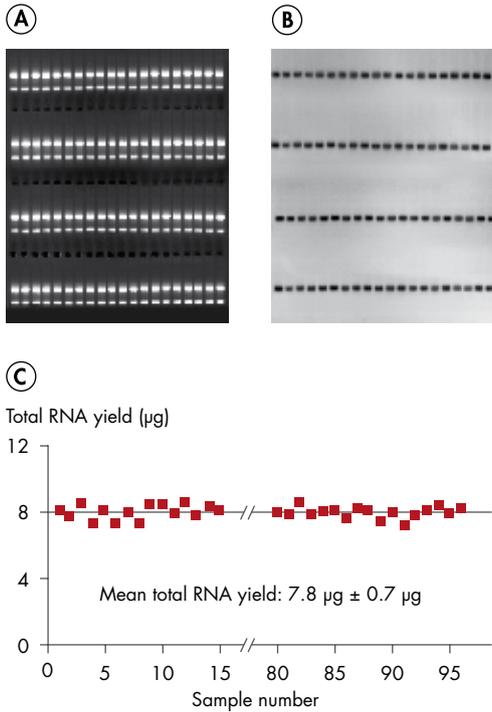


Figure 1. Reproducible purification of high-quality RNA. **A** HeLa cells (5×10^5) from a homogeneous cell culture were pelleted in a 96-well cell-culture plate and the total RNA purified using the RNeasy 96 Kit. Half of each eluate was analyzed on a formaldehyde agarose gel (80 samples shown). **B** The corresponding northern blot was hybridized with a ^{32}P -labeled GAPDH probe. **C** Each square represents the yield from a preparation originating from 1 well of the 96-well cell-culture plate.

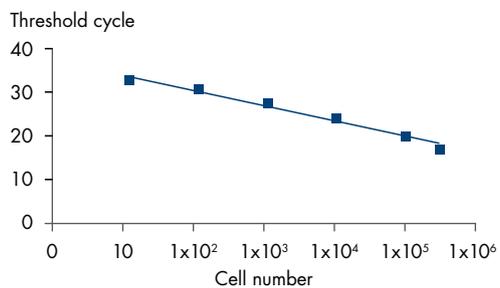


Figure 2. Linear C_t values over a wide dynamic range. RNA was purified from 10 to 5×10^5 Jurkat cells using the RNeasy 96 BioRobot 8000 Kit on the BioRobot Universal System. Purified RNA was eluted in 100 µl RNase-free water, and 5 µl of a 1:10 dilution of the eluate was used in real-time one-step RT-PCR. Reactions (25 µl volume) were run on the ABI PRISM® 7700 using the QuantiTect® Probe RT-PCR Kit with primers and probe for the β-actin transcript. The plot shows linear C_t values over a wide range of starting template amounts.

RNeasy 96 Kit and RNeasy 96 BioRobot 8000 Kit

The RNeasy 96 Kit is intended for manual RNA purification and cleanup using either a vacuum/spin protocol or a spin protocol. The RNeasy 96 BioRobot 8000 Kit is specially designed for automated RNA purification and cleanup on the BioRobot Universal System, which can also automate setup of real-time RT-PCR.

Benefits of the RNeasy 96 Kit and RNeasy 96 BioRobot 8000 Kit:

- Choice of manual or automated sample processing
- Reproducible RNA yields from up to 5×10^5 cells
- High-quality total RNA in minutes
- Ready-to-use RNA for any application

The RNeasy 96 Kits deliver high and consistent yields of total RNA, with no significant variation between the rows or columns of the RNeasy 96 plate (Figure 1). The kits also provide reliable RNA purification over a wide range of amounts of starting material (Figure 2). The quality of the purified RNA ensures highly reproducible results in applications such as real-time RT-PCR analysis (Figure 3).

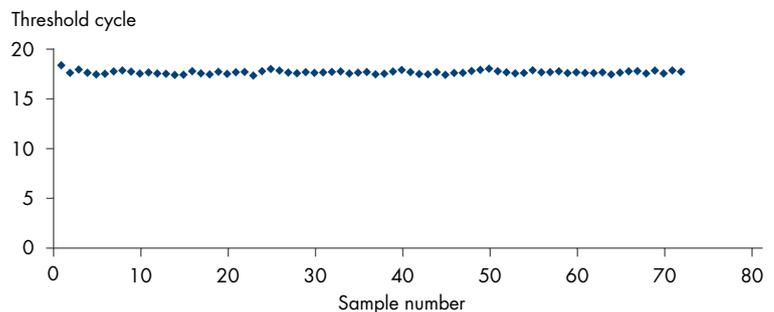


Figure 3. Reproducible quantitative RT-PCR results. RT-PCR setup was performed using an automated procedure on the BioRobot Universal System. Each reaction contained 40 ng purified RNA. Real-time RT-PCR was carried out using the QuantiTect Probe RT-PCR Kit and primers and probe specific for the β-actin gene. C_t values were highly reproducible with average C_t CVs of 0.92%.

RNeasy Plus 96 Kit

The RNeasy Plus 96 Kit combines the use of novel gDNA Eliminator 96 plates with RNeasy 96 plates to ensure purification of RNA that is virtually free of genomic DNA contamination. The purified total RNA, which represents the transcriptome state of the cell, is ideally suited for downstream applications in gene expression analysis.

Benefits of the RNeasy Plus 96 Kit:

- Integrated removal of genomic DNA
- No need for DNase digestion
- Reproducible RNA yields from up to 2×10^6 cells
- High-quality total RNA in minutes

The RNeasy Plus 96 Kit is compatible with a wide range of cell lines, providing purification of high-quality RNA with Agilent® RIN values of close to 10 (Figure 4). Complete genomic DNA removal by the kit (Figure 5) enables specific transcript detection in highly sensitive applications, such as quantitative, real-time RT-PCR analysis of low-abundance targets. In addition, reliable RNA purification from 10^2 to 10^6 cells allows real-time RT-PCR quantification over a wide dynamic range (Figure 6).

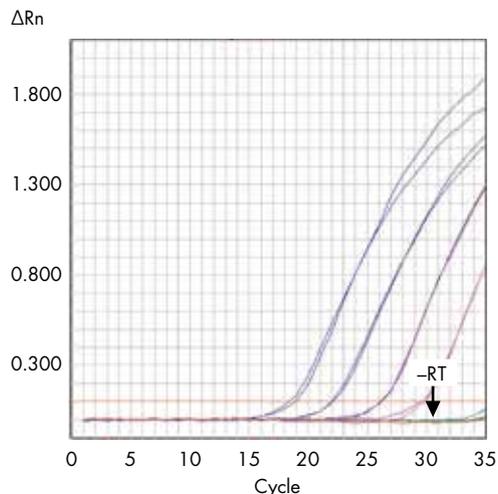
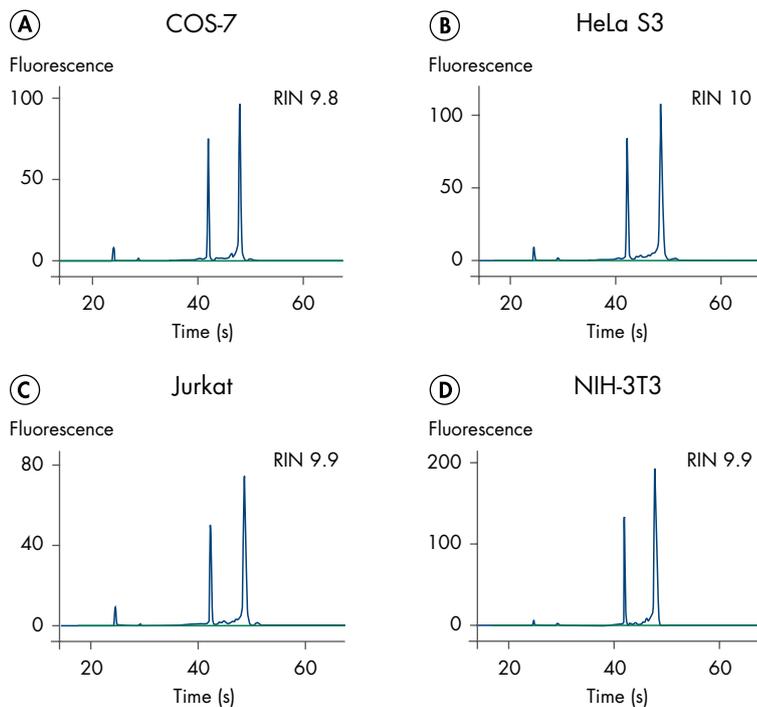


Figure 5. Effective genomic DNA removal. Total RNA was purified from Jurkat cells (10^5 , 10^4 , 10^3 , and 10^2) using the RNeasy Plus 96 Kit. Real-time RT-PCR analysis of the β -actin transcript was performed using a primer-probe set that could amplify and detect both mRNA and genomic DNA sequences. The flat amplification plot for the no RT control (-RT) indicates the absence of genomic DNA.

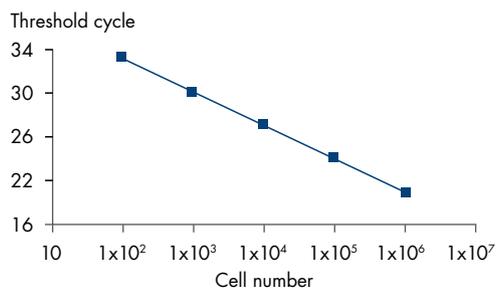


Figure 6. Reliable RNA purification from a wide range of cell numbers. Total RNA was purified from 10-fold serial dilutions of Jurkat cells (10^6 to 10^2 cells) using the RNeasy Plus 96 Kit. Real-time RT-PCR analysis of the β -actin transcript was performed. The linear graph of C_t values against cell dilution indicates reliable RNA purification over a wide range of amounts of starting material ($R^2 = 0.9985$).

Figure 4. High-quality RNA. Total RNA was purified from the indicated cell lines using the RNeasy Plus 96 Kit and analyzed on the Agilent 2100 Bioanalyzer. The RIN values were close to 10, indicating the high integrity of the purified RNA.

Ordering Information

Product	Contents	Cat. no.
PCR cleanup		
RNeasy Plus 96 Kit (12)	For 12 x 96 total RNA preps: 12 RNeasy 96 Plates, 12 gDNA Eliminator 96 Plates, Elution Microtubes CL, Caps, S-Blocks, AirPore Tape Sheets, RNase-Free Reagents and Buffers	74192
RNeasy 96 Kit (4)	For 4 x 96 total and cytoplasmic RNA preps: 4 RNeasy 96 Plates, Elution Microtubes CL, Caps, S-Blocks, AirPore Tape Sheets, RNase-Free Reagents and Buffers	74181
RNeasy 96 Kit (12)	For 12 x 96 total and cytoplasmic RNA preps: 12 RNeasy 96 Plates, Elution Microtubes CL, Caps, S-Blocks, AirPore Tape Sheets, RNase-Free Reagents and Buffers	74182
RNeasy 96 BioRobot 8000 Kit (12)	For 12 x 96 total RNA preps on the BioRobot Universal System: 12 RNeasy 96 Plates, Elution Microtubes CL, Caps, S-Blocks, RNase-Free Reagents and Buffers	967152
Accessories		
QIAvac 96 — for vacuum processing of 96-well plates		
QIAvac 96	Vacuum manifold; includes QIAvac 96 Top Plate, Base, Waste Tray, Plate Holder, Rack of Collection Microtubes	19504
QIAGEN 96-Well-Plate Centrifugation system — for spin processing of 96-well plates		
Centrifuge 4-15C	Universal laboratory centrifuge with brushless motor	Inquire
Plate Rotor 2 x 96	Rotor for 2 QIAGEN 96-well plates*	81031
BioRobot Universal System — for fully automated medium- to high-throughput applications in 96-well format		
BioRobot Universal System	Robotic workstation, computer-controlled vacuum pump, computer, QIAsoft 5 Operating System, installation, 1-year warranty on parts and labor	9001094
Application Pack, Gene Expression	Protocols and application-specific accessories for RNA purification and RT-PCR setup on the BioRobot Universal System	9016754

* The Plate Rotor 2 x 96 is available exclusively from QIAGEN and its distributors. Under the current liability and warranty conditions, the rotor may only be used in Centrifuges 4-15C and 4K15C from QIAGEN, and freely programmable models of centrifuges 4-15, 4K15, 6-10, 6K10, 6-15, and 6K15 from Sigma Laborzentrifugen GmbH.

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

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