Automated Workflows from Sample to Result

Cutting-edge solutions for your life science, applied testing, or molecular diagnostics workflow

QIAGEN®

Sample & Assay Technologies

Sample disruption → Purification → Assay setup → Detection and analysis

QIAGEN provides cutting-edge automated solutions that cover each step of the life science or molecular diagnostics research laboratory workflow — from sample to result. Regardless of whether you work in academic, clinical, or commercial research, in vitro diagnostics, or standardized testing, automated sample and assay technologies standardize your workflow and deliver high-quality, reliable data. We provide innovative automated solutions to suit all your application requirements and daily throughput needs — from sample disruption to detection and analysis.

Purification of nucleic acids or proteins followed by analysis is labor-intensive and involves numerous tedious and time-consuming steps. Our award-winning automated solutions with fully integrated, proven QIAGEN® kits enable rapid, standardized purification of target molecules from a wide variety of starting materials. Dedicated solutions with optimized chemistries for assay setup and detection and analysis deliver the high-quality results you need in your downstream applications. Our automated solutions can be seamlessly integrated into your complete workflow, eliminating manual handling errors and enabling you to free up your time. Furthermore, QIAGEN automated solutions are easy to use and can be operated by all lab personnel — from the automation novice to the expert.

In addition to precision and quality, we provide comprehensive support services to assure fast startup and continued success of your automated applications. QIAGEN Service Solutions provides a wide range of flexible support agreements tailored to your needs.

Discover cutting-edge solutions for your automated workflow at www.qiagen.com/automation-01!

Sample disruption

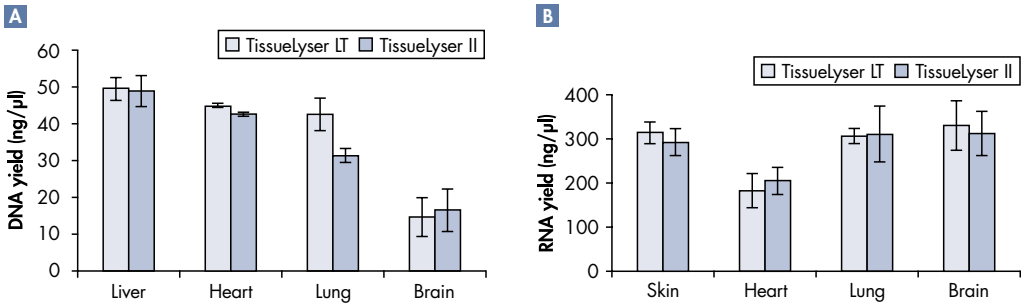
TissueRuptor®, TissueLyser LT, and TissueLyser II systems

The TissueRuptor — a handheld rotor–stator homogenizer that uses disposable probes — provides rapid and efficient low-throughput disruption of animal and human cells or tissues and plant material. The TisseLyser LT is a small bead mill that provides low- to medium- throughput sample disruption, enabling effective disruption of up to 12 samples at the same time. The TissueLyser II provides fast, medium- to high-throughput disruption of up to 2 x 96 samples of tissue, plant material, yeast, or bacteria in less than 5 minutes.

- Rapid and efficient disruption of a wide range of sample types
- Minimized risk of cross-contamination
- Reproducible, standardized disruption
- Seamless integration with QIAGEN sample purification technologies

TissueRuptor, TissueLyser LT, and TissueLyser II systems

Key features	TissueRuptor	TissueLyser LT	TissueLyser II
Sample throughput	Single sample	Up to 12 samples at the same time	Up to 48 or 192 samples in parallel. Adapter Sets for flexible sample throughput (2 x 24, 2 x 96)
Disruption technology	Rotor–stator; disposable probes	Bead mill; steel or glass beads	Bead mill; steel, tungsten carbide, or glass beads
Disruption time	~30 s	Between 4 s and 5 mins, depending on the protocol	<5 mins



Effective tissue disruption. Various rat tissues were disrupted using the TissueLyser LT or TissueLyser II. A DNA was purified from 25 mg samples on the QIAcube using the DNeasy Blood & Tissue Kit. DNA yields were determined using a spectrophotometer. B RNA was purified from 20 mg samples on the QIAcube using the RNeasy Fibrous Tissue Mini Kit (skin, heart, and lung) or RNeasy Lipid Tissue Mini Kit (brain). RNA yields were determined using a spectrophotometer.

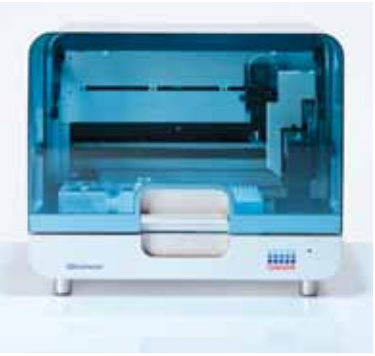
Purification

QIAcube

QIAcube®

The award-winning QIAcube simplifies sample prep by enabling walkaway automation of trusted QIAGEN spin-column kits. All steps in the purification procedure are automated, and up to 12 samples can be processed per run. The continuously expanding range of protocols has now grown to more than 100 standard protocols. For more information, visit the QIAcube Web Portal at www.qiagen.com/MyQIAcube.

- Purification of DNA, RNA, or proteins
- Automation of trusted QIAGEN spin-column kits
- Elimination of manual processing steps
- More free time with affordable automated processing
- Standardized results and increased productivity

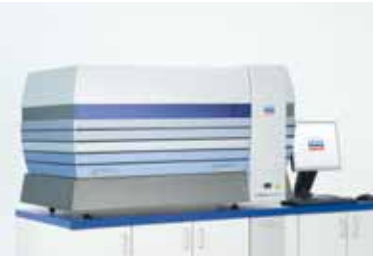


QIAxtractor

QIAxtractor®

The QIAxtractor is a compact instrument that provides walkaway purification of nucleic acids from 8–96 samples per run. The easy-to-use, economical system comprises instrument, reagents, plasticware, and optimized protocols, enabling purification of nucleic acids from a wide range of sample types in 96-well format. The instrument has low tip consumption, reducing waste and improving cost-efficiency.

- Fast processing of 96 samples in 96 minutes
- Compact benchtop instrument fits on any bench
- Built-in HEPA filter and UV lamp minimize contamination
- Economical sample preparation
- Convenient pre- and post-run documentation



BioRobot Universal System

BioRobot® Universal System

The BioRobot Universal System integrates all the instrumentation, software, purification technologies, and enzyme technologies that are required for medium- to high-throughput applications in 96-well format. Standardized, highly reproducible nucleic acid purification and reaction setup at the front-end of your molecular biology applications ensure consistent, reliable results that can be compared across experiments and projects.

- Reproducible, standardized results between experiments and labs
- Fast startup and immediate results with optimized, ready-to-run protocols
- Widest range of applications in 96-well format
- Nucleic acid purification and subsequent assay setup

Autopure LS®

The Autopure LS enables automated purification of genomic DNA from sample volumes of 1–10 ml using proven Puregene® chemistry. Purified DNA is highly stable and well-suited for archiving. For increased convenience and flexibility, samples can be processed in batches of 8 or 16.

- Yields of up to 350 µg DNA per 10 ml fresh whole blood
- DNA from a broad range of sample types and sizes
- Proven Puregene chemistries with at least 18 years of DNA stability data
- Purification of highly stable DNA, ready for use or archiving
- Streamlined, efficient workflow

Autopure LS

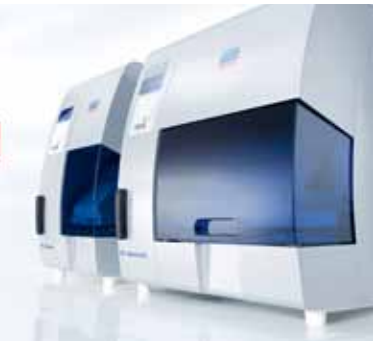
Centrifuges 4-16 and 4-16K

Centrifuges 4-16 and 4-16K (refrigerated) are universal laboratory centrifuges, designed for use with all QIAGEN spin products — from small- and large-scale columns to 96-well plates.

- Highly programmable: 50 user-definable programs
- Choice of 60 ramping profiles
- Wide speed range
- Convenient table-top format
- Accommodates common formats of 96-well plates

Centrifuge 4-16K

Purification

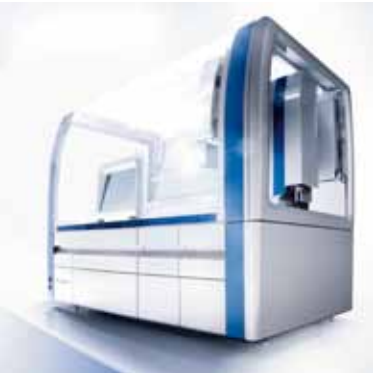


EZ1 Advanced and
EZ1 Advanced XL

EZ1® Advanced instruments

The EZ1 Advanced and EZ1 Advanced XL enable rapid purification of nucleic acids from 1–6 and 1–14 samples, respectively, using proven magnetic-particle technology. New features enable effortless data management and provide secure user environments. The combination of easy-to-use instrument with error-free protocol selection and worktable setup makes nucleic acid purification simple.

- High-quality genomic DNA and RNA from a broad range of sample materials
- Purification of viral nucleic acids and bacterial DNA from virtually all sample types
- Effortless data management with full traceability
- UV decontamination for a safe user environment
- Flexible throughput by connecting multiple units



QIAsymphony SP

QIAsymphony® SP

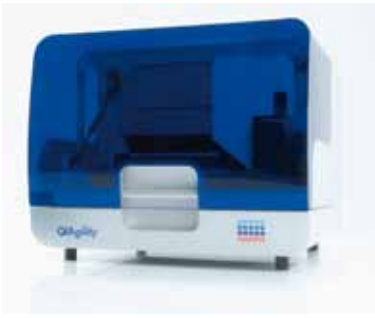
The QIAsymphony SP, the first module in the QIAsymphony product line, meets the demand for flexible sample preparation of nucleic acids and 6xHis-tagged proteins from a wide range of starting materials. Up to 96 samples — in batches of up to 24 samples — can be processed per run, with sample volumes up to 2 ml. The broad range of applications combined with the exceptional purification efficiency and process safety of the QIAsymphony SP place it at the cutting edge of laboratory automation for all disciplines in molecular biology. The QIAsymphony SP can be seamlessly integrated with the QIAsymphony AS assay setup module (page 7), and is compatible with real-time PCR applications on the Rotor-Gene® Q (page 10), enabling automation of your entire workflow — from sample to result.

- Easy-to-use with built-in touchscreen and novel, prefilled reagent cartridges
- Purification of DNA, RNA, viral and bacterial nucleic acids, 6xHis-tagged proteins
- In-process sample loading and queuing enables flexible system use
- Remote Service (QDM) and data management via network or USB
- Workflow extension with the QIAsymphony AS module

Assay Setup

QIAgility®

The QIAgility is a compact benchtop instrument that enables various high-precision pipetting applications and rapid, reliable automated PCR setup in a wide range of formats, including PCR assays for the Rotor-Gene Q (page 10). The high precision of the QIAgility delivers the reproducible results you need in your quantitative PCR assays and sensitive experiments, from sample to sample and experiment to experiment. For easy setup, the software mirrors the instrument worktable. Optimized protocols assure fast startup and immediate results. The flexibility of the software enables the user to develop software protocols to suit specific application requirements, allowing the QIAgility to easily be adapted to changing research needs. The unmatched versatility of the QIAgility means that almost all tube and plate formats are supported, as well as rotors for the Rotor-Gene Q, enabling compatibility with many different instruments.

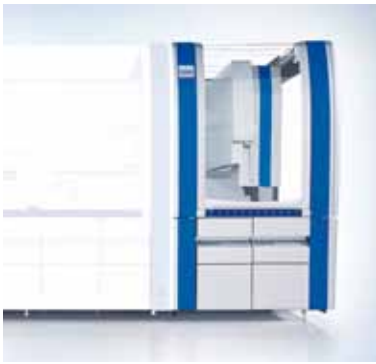


QIAgility

- Automated PCR setup in all formats and additional high-precision pipetting applications
- Convenient, easy-to-use software for rapid start up
- Standardized results and increased productivity
- Elimination of manual pipetting steps that can be prone to human error
- Seamless integration with QIAGEN sample technologies and virtually any workflow

QIAsymphony AS

The QIAsymphony AS extends the capabilities of the QIAsymphony SP (page 6) to include automated assay setup. The AS module interfaces with the QIAsymphony SP and is operated via the same easy-to-use, intuitive software. For integrated operation, samples processed on the QIAsymphony SP can be directly transferred to the QIAsymphony AS, reducing manual handling steps and documentation. The QIAsymphony AS provides active cooling of reagents, eluates, and assays, enabling safe and reproducible assay setup. The QIAsymphony AS enables setup of multiple assays per run or sample and supports *artus*® products and other QIAGEN products for PCR.* Extend your automation workflow with the QIAsymphony AS and reduce hands-on time for nucleic acid purification and assay setup. The QIAsymphony series of instruments can also be combined with the Rotor-Gene Q (page 10), enabling automation of complete workflows — from sample to result.



QIAsymphony AS

- Automated, integrated assay setup module complements the QIAsymphony SP
- Convenient, easy-to-use sample-oriented software
- Reduced hands-on time and convenient electronic documentation
- Customization service for in-house assays
- Seamless integration with QIAGEN sample and assay technologies

* For information about protocol availability, please inquire.

Sample disruption

TissueRuptor

Handheld rotor-stator homogenizer for low-throughput sample disruption

TissueLyser LT

Low- to medium- throughput homogenization using beads

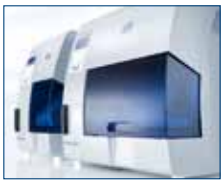
TissueLyser II

Medium- to high- throughput homogenization using beads

Purification

QIAcube

Instrument for DNA, RNA, and protein purification using QIAGEN spin-column kits

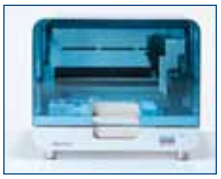


EZ1 Advanced and EZ1 Advanced XL

Nucleic acid purification solution using magnetic-particle technology

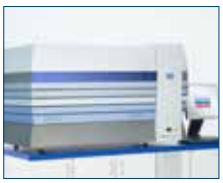
QIAsymphony SP

Instrument for nucleic acid and protein purification using magnetic-particle technology, can be easily upgraded to include QIAsymphony AS module



QIAxtractor

Economical, high-throughput nucleic acid purification using silica-membrane technology



BioRobot Universal System

Instrument for nucleic acid purification using silica-membrane technology and subsequent assay setup

Autopure LS

Purification of genomic DNA using salting-out method

Centrifuges

Universal laboratory centrifuge designed for use with all QIAGEN spin products

Assay setup

QIAsymphony AS

Extension of the QIAsymphony SP, delivering highly reliable and reproducible assay setup

QIAgility

Liquid handling system for precision PCR setup

Detection and analysis

Rotor-Gene Q and Rotor-Gene Q MDx*

Real-time PCR cyclers with high-resolution melting (HRM) analysis

QIAxcel Advanced System

Capillary gel electrophoresis systems

PyroMark Q24, PyroMark Q24 MDx*, and PyroMark Q96

Real-time sequence-based detection and quantification of mutations and DNA methylation using Pyrosequencing technology

* Available for in vitro diagnostics applications. Not available in all countries; please inquire.

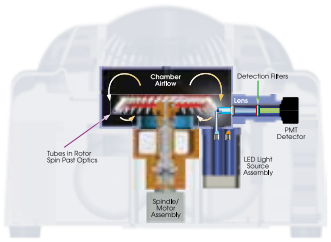
Detection and analysis

Rotor-Gene Q

Rotor-Gene Q

The unique centrifugal rotary design of the Rotor-Gene Q makes it the world's most precise and versatile real-time PCR instrument. Each tube spins in a chamber of moving air, which keeps all samples at each step of the cycling program at exactly the same temperature. Optical detection is equally precise since each sample rotates past the excitation and detection optics. This unique design delivers sensitive and fast PCR analysis and eliminates the variation that typically occurs in block-based cyclers. With up to 6 channels spanning UV to infrared wavelengths, the Rotor-Gene Q delivers the greatest optical range of any real-time cycler. Interchangeable rotors enable analysis in different sample volumes and tube formats, which are all fully supported by the QIAgility (page 7) for automated PCR setup.

With the Rotor-Gene Q, you can take advantage of the broadest application range for quantitative PCR and HRM®. We've recently extended our application range with cutting-edge kits for pathogen detection, food safety testing, forensics, and gene expression.



Rotor-Gene Q cycler. Heating/cooling is achieved by rapid airflow in the reaction chamber. Tubes spin past the excitation/detection optics every 150 milliseconds. High-speed data capture is provided by a highly sensitive photomultiplier detector.

New applications:

- Pathogen detection with QuantiFast® Pathogen +IC Kits
- Food safety testing with *mericon*® real-time PCR Kits
- Forensics with the Investigator Quantiplex Kit
- Pathway analysis with RT² Profiler PCR Arrays
- miRNA profiling with miScript miRNA PCR Arrays

Existing applications:

- Gene expression analysis
- Genotyping
- DNA methylation analysis
- miRNA research

New **Rotor-Gene ScreenClust™ HRM Software**

Rotor-Gene ScreenClust HRM Software extends the capabilities of Rotor-Gene Q operating software. By grouping samples into clusters it enables reliable detection of even single base pair changes for high performance in applications such as genotyping and mutation screening.

- Innovative mathematical approach to HRM analysis
- Highly accurate identification of genotypes in supervised mode
- Automatic detection of new mutations in unsupervised mode
- Robust statistics for classifying and interpreting HRM data
- Minimal effort and standardized processes for data interpretation

Rotor-Gene Q MDx*

The innovative Rotor-Gene Q MDx instrument enables high-precision real-time PCR. In combination with QIAGEN CE-IVD-marked PCR kits, the Rotor-Gene Q MDx instrument is highly suited for diagnostic applications.

- Compliance with EU IVD Directive 98/79/EC
- Outstanding thermal and optical performance due to rotary format
- Robust technology, requiring minimal maintenance
- Easy-to-use software with state-of-the-art security features
- Broad portfolio of CE-IVD-marked PCR kits

Rotor-Gene Q MDx

New QIAxcel® Advanced System

The exceptional QIAxcel Advanced System, in combination with new QIAxcel ScreenGel™ software, replaces traditional, labor-intensive gel electrophosresis of DNA and RNA — streamlining your workflow and reducing time to result. The QIAxcel Advanced System fully automates high-resolution capillary electrophoresis of up to 96 samples per run. Ready-to-run gel cartridges allow 96 samples to be analyzed with a minimum of hands-on interaction, reducing manual handling errors and eliminating the need for tedious gel preparation.

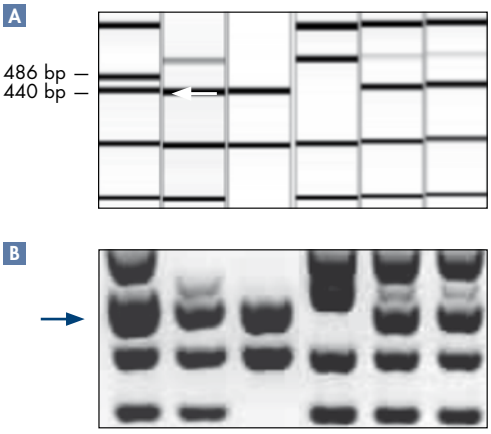
QIAxcel Advanced and ScreenGel Software

The QIAxcel Advanced delivers:

- Standardized and accurate analysis with resolution down to 3–5 bp
- Processing of 12 DNA samples in just a few minutes
- Robust results for nucleic acid concentrations as low as 0.1 ng/µl
- Automatic analysis and electronic documentation

New QIAxcel ScreenGel Software

- Facilitates system setup and data analysis
- Minimizes required user training
- Delivers significant time savings
- Supports 21 CFR Part 11 compliance



Superior separation on the QIAxcel. Samples were analyzed either on A the QIAxcel or B by agarose gel electrophoresis. Arrows indicate bands of approximately 440 bp that were originally scored as positive due to proximity to the band of expected size (486 bp).

* Available for in vitro diagnostics applications. Not available in all countries; please inquire.

Detection and analysis

PyroMark Q96 and Q24 instruments

PyroMark Pyrosequencing® systems

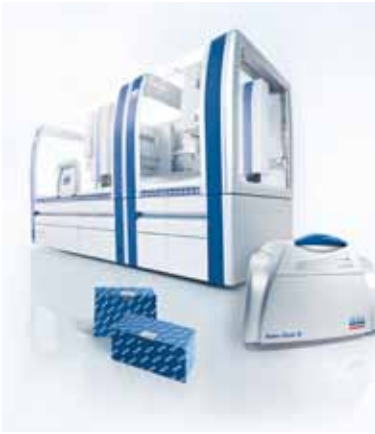
The PyroMark Pyrosequencing platforms integrate detection and quantification into one powerful system, providing highly accurate results in a sequence context within minutes. Pyrosequencing with a PyroMark platform outperforms other sequence-based solutions for examining targeted short DNA sequences. Multiple types of analyses such as mutation analysis, drug resistance typing, and DNA methylation quantification can be carried out on the same instrument and even in the same run. The versatile PyroMark platforms seamlessly integrate into epigenetics and genetic analysis workflows, and complement QIAGEN's advanced technologies for sample preparation, bisulfite conversion, and PCR amplification. Applications requiring large sample sizes or high replicate numbers are best performed on the PyroMark Q96 ID or MD, which offer parallel preparation and analysis of 96 samples. The PyroMark Q24 offers the same analysis versatility with a smaller footprint and lower sample throughput. The PyroMark Q24 MDx* and dedicated CE-IVD-marked accessory kits are highly suited for the analysis of mutations for in vitro diagnostics applications. The entire Pyrosequencing workflow is simple and streamlined, and each step is supported by software, kits, reagents, and sample preparation instrumentation optimized for Pyrosequencing.

- Parallel analysis of 1–96 samples in as little as 15 minutes
- Highly accurate methylation quantification at individual and contiguous sites
- Quantification of alleles, even when found at low frequencies
- Detection of unknown sequence variants
- Built-in assay controls guaranteeing data accuracy and reliability

* Available for in vitro diagnostic applications. Not available in all countries; please inquire.

New QIAsymphony RGQ

QIAGEN's new workflow solution comprises the QIAsymphony SP for sample preparation, the QIAsymphony AS for assay setup, and a broad range of ready-to-use assays on the Rotor-Gene Q real-time PCR cycler. The QIAsymphony RGQ gives you unprecedented flexibility and convenience in your daily molecular testing routine, allowing you to design your agenda around the streamlined workflow.



QIAsymphony RGQ

The QIAsymphony RGQ system provides:

- Modular system with serial and parallel processing for maximum flexibility
- Consolidation of commercial and in-house assays on a single platform
- Intuitive software and touchscreen for ease of use
- Complete cost control with innovative reagent cartridges that eliminate reagent waste
- Compatibility with multiple sample types in a range of formats

The broad range of applications includes:

- *artus* transplantation panel (CMV, EBV, HSV, BK virus, and VZV)
- *artus* blood-borne virus panel (HIV, HCV, and HBV)
- Your own in-house tests

QIAGEN will continue to expand the QIAsymphony series. You can expect revolutionary advances with respect to sample input and processing, instrument performance, as well as a continuous expansion of the assay portfolio.

Experience a new era in molecular testing!

Sample disruption → Purification → Assay setup → Detection and analysis

Peace of mind through unrivaled instrument and application support

QIAGEN Service Solutions provides comprehensive support services for laboratory instruments, in life science research and in vitro diagnostics laboratories, to ensure the continued success of your automated applications.

- Worldwide service
- 24-hour technical support
- Expertise in automation and application support
- Quick response times

QIAGEN Service Solutions offers a wide range of flexible Service Support products, giving you peace of mind and letting you enjoy complete coverage and cost control. We work in partnership with you to establish proven QIAGEN applications on your system. Our Application Services and Training Programs give you the freedom and flexibility to adapt your system to specific or changing research needs. With ISO 9001/ISO 13485 certification and an international team of highly qualified and experienced Support Specialists, we deliver the high-quality service that you deserve and that your applications demand.

Get up and running quickly

- Installation and introductory training by certified service engineers
- Training and Consulting Services to build up instrument expertise in your lab

Increased productivity and instrument uptime

- Flexible Service Agreements with various support levels to meet your needs and budget
- Repairs and upgrades with all parts certified and guaranteed
- Preventive Maintenance to assure optimal performance and maximum productivity
- Priority Packages and PrioPlus Packages for tailored service plans

Value-added services to meet your individual needs*

- Application Services for designing and optimizing applications
- Qualification Services with full documentation and performance of IQ/OQ
- Validation Support Services for regulatory requirements
- Remote Diagnostics Services to keep you proactively informed before an error occurs
- LIMS Integration Service for a more powerful workflow

* Not available for all systems; please contact your local Instrument Service Department for more information.

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.

"RNA*later*®" is a trademark of AMBION, Inc., Austin, Texas and is covered by various U.S. and foreign patents.

Visit www.qiagen.com/automation-01 and find out how to automate your workflow — from sample to result!

www.qiagen.com

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Ireland ▪ Orders 1800-555-049 ▪ Fax 1800-555-048 ▪ Technical 1800-555-061

Italy ▪ Orders 800-789544 ▪ Fax 800-789660 ▪ Technical 800-787980

Japan ▪ Telephone 03-6890-7300 ▪ Fax 03-5547-0818 ▪ Technical 03-6890-7300

Korea (South) ▪ Orders 080-000-7146 ▪ Fax 02-2626-5703 ▪ Technical 080-000-7145

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Switzerland ▪ Orders 055-254-22-11 or 0800-897470 ▪ Fax 055-254-22-13 ▪ Technical 055-254-22-12 or 0800-837160

Taiwan ▪ Orders 0080-665-1946 ▪ Fax 8862-2369-1100 ▪ Technical 0080-665-1947

UK ▪ Orders 01293-422-911 or 0808-2343665 ▪ Fax 01293-422-922 ▪ Technical 01293-422-999 or 0808-2343974

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