Explore the RNA universe

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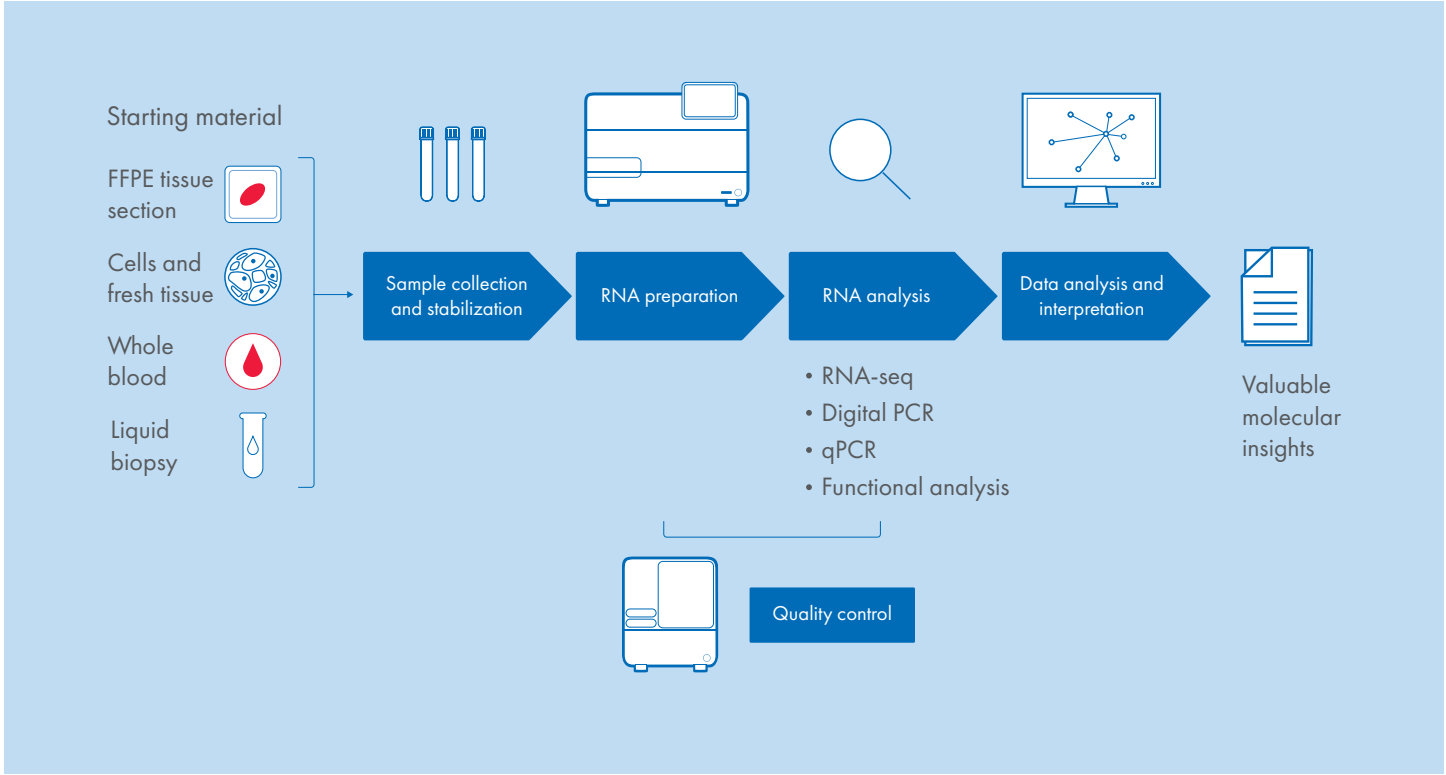
Insights into RNA functions are changing our understanding of biomolecules, cells and diseases. Scientists worldwide are exploring and characterizing the RNA universe beyond just mRNA. Expanding our understanding of other components of the universe, such as miRNA and lncRNA, is propelling these exciting areas of basic and translational research into the limelight, creating a new frontier in biomarker discovery and investigation.

Tools designed to streamline your RNA workflows

We offer a broad portfolio of reagents, assays, instruments and software for purification, quantitation, detection, synthesis and manipulation of RNA that can help you gain deeper insights into the RNA universe.



Reliable sample collection and stabilization

Investigation of gene expression requires reliable pre-analytical steps including sample collection, stabilization and isolation chemistries specific to the sample type to overcome issues such as RNA instability, potential contamination and degradation.

Pre-analytical steps can cause variability in RNA quality and yield, which can render results from different labs and between different operators incomparable. QIAGEN fine-tunes its technologies to target these concerns, allowing you to confidently isolate intact RNA from your samples.

RNAprotect® and Allprotect® reagents for RNA collection and stabilization

Take advantage of immediate stabilization of RNA and RNA protection using RNAprotect and Allprotect reagents:

- Short and long-term RNA storage in various samples without liquid nitrogen or dry ice
- Preserve the gene expression profile and enable reproducible purification of high-quality RNA

Starting sample type	Target biomolecules	Sample stabilization
Tissue/FFPE	DNA, RNA and proteins	Allprotect Tissue Reagent
Tissue	RNA	RNAprotect Tissue Reagent
Cells	RNA	RNAprotect Cell Reagent
Bacteria	RNA	RNAprotect Bacteria Reagent

PAXgene® Systems for RNA collection, stabilization plus isolation

PAXgene Systems provide sample collection, transport, storage and stabilization with RNA isolation:

- Stabilize RNA profiles in various samples, before RNA or miRNA isolation using the PAXgene RNA or miRNA Kits
- Achieve unbiased gene expression data without artificial changes in mRNA levels

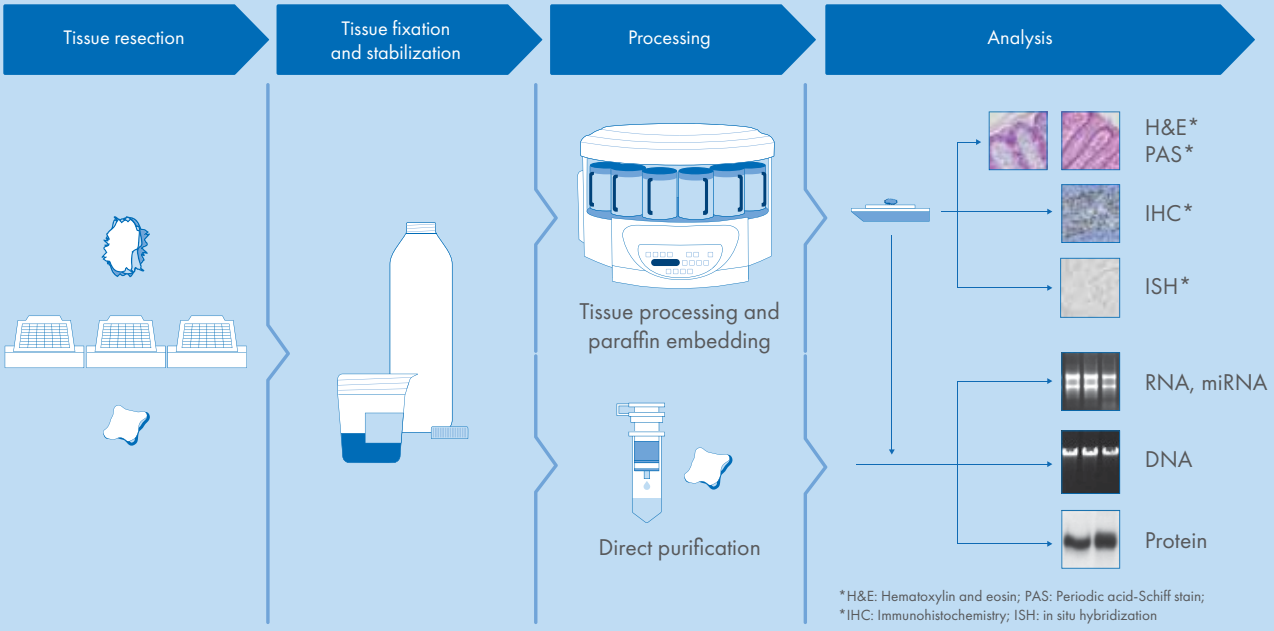
Starting sample type	Sample collection and stabilization	Dedicated RNA preparation
Tissue	PAXgene Tissue FIX Container	PAXgene Tissue RNA/miRNA Kit
Whole blood	PAXgene Blood RNA Tubes (IVD)*	PAXgene Blood RNA Kit (IVD)*/PAXgene Blood miRNA Kit QIAsymphony® PAXgene Blood RNA Kit
Bone marrow	PAXgene Bone Marrow RNA Tube	PAXgene Bone Marrow RNA Kit
Saliva	PAXgene Saliva Collector†	QIAamp® Viral RNA Mini Kit

* For in vitro diagnostic testing only. To be used in combination with PAXgene Blood RNA Tubes (IVD, cat. no. 762165); sold by BD. The PAXgene Blood RNA System is available for IVD use only when the PAXgene Blood RNA Tubes (cat. no. 762165) are used in combination with the PAXgene Blood RNA Kit (US-IVD, cat. no. 762164 or CE-marked, cat. no. 762174).

† For SARS-CoV-2 RNA

Stabilization of RNA and miRNA from tissue samples, followed by isolation using the PAXgene Tissue RNA/miRNA Kit

The PAXgene Tissue System enables simultaneous preservation of histomorphology and biomolecules.



RNA quality that´s out of this world!

We offer RNA purification technologies for various tissue samples, input amounts and elution volumes. Plus, you can free your time for other tasks by automating the purification process using the kit with a QIAGEN instrument. The purified RNA is ready to use in downstream applications including those that are sensitive to low amounts of DNA contamination, such as qPCR.

Starting sample type	**Target fraction**					**Automatable using:**
	RNA >200 nucleotides: mRNA, lncRNA and other long RNAs		RNA >18 nucleotides: mRNA, lncRNA, miRNA and other small RNAs			
Cells or easy-to-lyse tissues	• QIAwave RNA Mini Kit* • RNeasy® Plus Mini Kits† • RNeasy Mini QIAcube® Kit		• miRNeasy Tissue/Cells Advanced Mini Kit			• QIAcube Connect
	• EZ2® RNA/miRNA Tissue/Cells Kit					• EZ2 Connect
	• QIAsymphony® RNA Kit					• QIAsymphony SP
FFPE tissues	• RNeasy FFPE Kit		• miRNeasy FFPE Kit			• QIAcube Connect
	• EZ2 RNA FFPE Kit • EZ2 AllPrep® DNA/RNA FFPE Kit					• EZ2 Connect
	• QIAsymphony RNA Kit					• QIAsymphony SP
Low biomass/ micro samples	• RNeasy Plus Micro Kit† • RNeasy UCP Micro Kit‡		• miRNeasy Tissue/Cells Advanced Micro Kit			• QIAcube Connect
Fiber- or lipid-rich tissues	• RNeasy Fibrous Tissue Kit • RNeasy Plus Universal Kits§		• miRNeasy Mini Kit**			• QIAcube Connect
Plants & fungi	• RNeasy Plant Mini Kit¶		• miRNeasy Mini Kit**			• QIAcube Connect
RNA cleanup and concentration	• RNeasy MinElute® Cleanup Kit					• QIAcube Connect
	Intact vesicles	Exosomal RNA	Cell-free miRNA	Cell-free total DNA, RNA	Cellular RNA	
Serum, plasma	• exoEasy Maxi Kit	• exoRNeasy Kits for cell-free mRNAs in plasma and EV-associated miRNAs	• miRNeasy Serum/ Plasma Advanced Kit	• QIAamp ccfDNA/ RNA Kit		
Whole blood					• EZ2 AdnaTest CTC Select Kit‡‡ • PAXgene 96 Blood RNA Kit§§	• EZ2 Connect

* More environmentally friendly version of the RNeasy Mini Kit.
† Includes gDNA Eliminator columns for gDNA removal.
‡ Ultra-clean production (UCP) for minimal exogenous nucleic acids for RNA-seq of low-abundance targets.
§ For purification of total RNA from all types of tissue; includes gDNA Eliminator solution.
¶ Includes QIAshredder for homogenization.
** Support protocol for plants available online.
‡‡ mRNA from circulating tumor cells.
§§ Used with PAXgene Blood RNA Tubes (available from BD, cat. no. 762165).

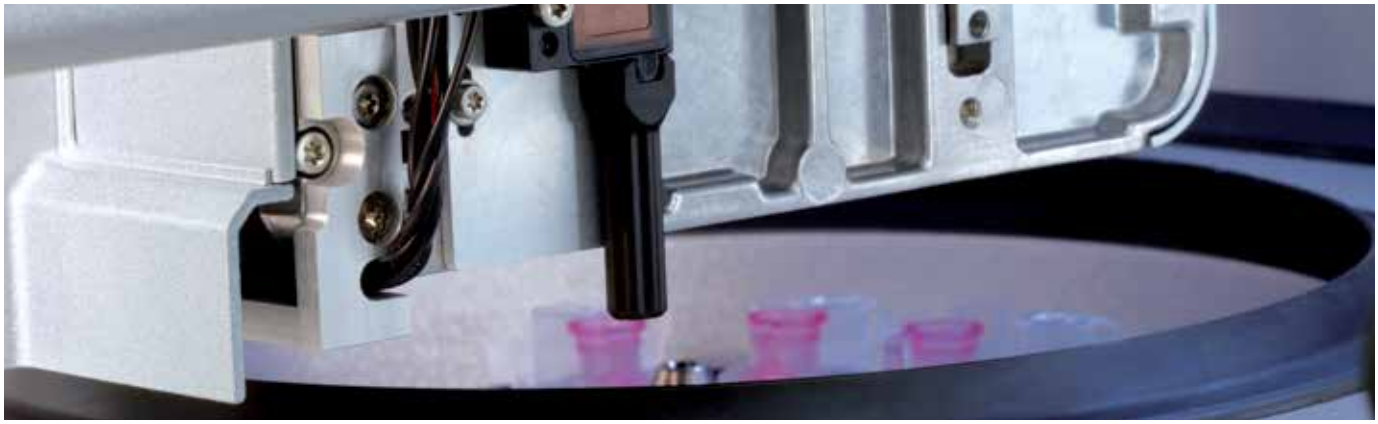
Did you know?

Our eco-friendlier **QIAwave RNA Mini Kit** uses 61% less plastic and 38% less cardboard compared to the RNeasy Mini Kit for total RNA isolation, decreasing lab waste without compromising quality.

Power up your RNA preparation with automation

Increase throughput while achieving pipetting precision and quality control efficiency with QIAGEN instruments optimized for RNA purification.

Instrument	Featured technology	Key features	
QIAcube Connect	Spin columns	• Automates over 80 QIAGEN Kits • Optional protocol customization • 12 samples in one run	
EZ2 Connect	Magnetic beads	• Fully automated • Prefilled cartridges • On-board pipetting • 24 samples in one run	
QIAsymphony SP	Magnetic beads	• Fully automated • Optional full integration with QIAsymphony AS for assay setup • Bar code reading for sample tracking • 96 samples in one run	

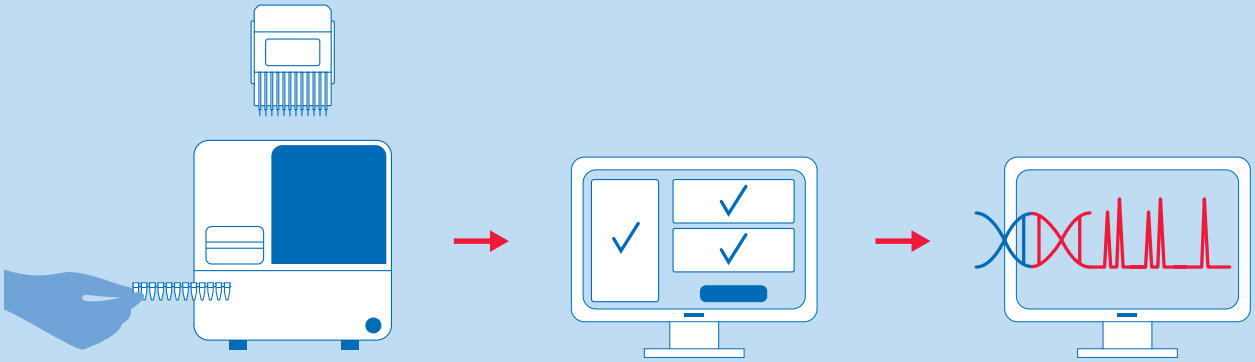


Standardized determination of RNA quality

Perform quality control of your RNA samples and NGS libraries with the QIAxcel® Connect System:

- Quickly and easily assess sample concentration, purity and size distribution from minimal input volumes
- Assess integrity with user-independent RNA integrity score (RIS)
- Save time and costs and gain peace of mind by processing only the samples of the highest quality

Plug and play electrophoresis



Insert your samples and gel cartridge

Select your analysis protocol

See your results in real time

Did you know?

Our smart online tool, the **workflow configurator**, helps you design experiments and find the right products for every step of your protocol.

Impactful discoveries powered by NGS

Next-generation sequencing (NGS) can deliver unprecedented insights, unraveling the intricacies of the genome and transcriptome in biomarker research, gene expression studies, viral epidemiology and disease surveillance, as well as comprehensive genomic profiling to identify variants implicated in cancer and other diseases. Partner with QIAGEN to unlock the full potential of NGS with innovative QIAseq technologies.

Our QIAseq® RNA-seq Kits provide these advantages:

- Unique molecular indices (UMIs) that enable increased precision of sequencing data
- Ultraplex (UPX) library construction that simplifies low-input and single-cell analysis
- Streamlined workflows – such as our gel-free workflow for miRNA library preparation – that support fast and reproducible NGS library preparation

Kit*	Input sample and amount	Target RNA	Library type	Molecular indexing (UMI†)	Library indexing (UDI/CDI†) (ps = purchase separately)
QIAseq FastSelect™ rRNA Removal Kits‡	Dependent on the library kit, single cell to 1000 ng	Globin mRNA, mitochondrial RNA, cytoplasmic RNA, chloroplast RNA	Any		
QIAseq Stranded mRNA Select Kits	1–10 ng enriched mRNA§ or 100–1000 ng RNA	mRNA	Complete transcriptome		384 UDIs (96 A–D)
QIAseq Stranded Total RNA Library Kits	1–10 ng depleted RNA¶ or 100–1000 ng RNA	mRNA, lncRNA	Complete transcriptome		384 UDIs (96 A–D)
QIAseq UPX 3′ Transcriptome Kits	Cell lysate of up to 100 cells, up to 10 ng RNA	mRNA	3′ RNA-seq	UMI	12 UDIs (ps) 48 UDIs (ps)
QIAseq UPX 3′ Targeted RNA Panels	Cell lysate of up to 100 cells, up to 10 ng RNA	mRNA	Targeted panel of up to 1000 genes	UMI	12 UDIs (ps) 384 UDIs (96 A-D) (ps)
QIAseq Targeted RNA Panels	25–5000 ng RNA	mRNA	Targeted panel of up to 1000 genes	UMI	12 CDIs (ps) 96 CDIs (ps)
QIAseq RNA Fusion XP Targeted Panels	10–250 ng RNA	Fusion RNA, mRNA	Targeted panel of up to 750,000 bases	UMI	16 UDIs (8 A–B) (ps) 192 UDIs (96 A–B) (ps)
QIAseq Targeted RNA Panel (TCR)	100 pg – 1000 ng RNA	TCR mRNA (alpha, beta, gamma, delta)	Targeted panel	UMI	24 UDIs (ps) 384 UDIs (96 A–D) (ps)
QIAseq Single Cell RNA Library Kits UDI	Single cell to 100 cells, 50 pg – 100 ng RNA	mRNA, lncRNA	Complete transcriptome or small genome enrichment		384 UDIs (96 A–D)
QIAseq miRNA Library Kits UDI	Up to 500 ng RNA	miRNA/piRNA, small RNA 18–40 bases	miRNome	UMI	12 UDIs (ps) 768 UDIs (96 A-H) (ps)
QIAseq UPXome RNA Library Kits	500 pg – 100 ng RNA	mRNA, lncRNA	Complete transcriptome RNA-seq, 3′ RNA-seq		12 UDIs (ps) 768 UDIs (96 A–H) (ps)
QIAseq FastSelect RNA Library Kit	1–1000 ng	mRNA, lncRNA	Complete transcriptome RNA-seq, 3′ RNA-seq		12 UDIs (ps) 768 UDIs (96 A–H) (ps)

* All QIAseq kits include QIAseq beads for reaction cleanup.
† UDIs = unique dual indices; CDIs = combinatorial dual indices; UMIs = universal molecular indices.
‡ QIAseq FastSelect rRNA Removal Kits – for use with QIAseq and other RNA library kits from other suppliers.

Ultraplex library prep (UPX) support	rRNA removal included	Species	Sequencers supported	Common applications	Complimentary access to GeneGlobe® or RNA-seq Analysis Portal (RAP)
	Standalone rRNA removal	Human, mouse, rat, bacteria, fish, fly, worm, plant, yeast, custom	Illumina®, Thermo Fisher Scientific®, Oxford Nanopore Technologies®	Neutralizes unwanted rRNA, compatible with various RNA-seq library preparation workflows	RAP access
		Any	Illumina	mRNA enrichment for gene expression and isoform detection	RAP access
		Any	Illumina	Use rRNA/globin depleted RNA for gene/lncRNA expression, RNA isoforms, SNVs. Compatible with meta-transcriptomics	RAP access
UPX support		Any	Illumina	High-throughput transcriptome-wide gene expression	RAP access
UPX support		Human, mouse	Illumina	High-throughput targeted gene expression	GeneGlobe access
		Human, mouse, rat	Illumina, Thermo Fisher Scientific	Gene expression of mRNA/lncRNA	GeneGlobe access
		Human	Illumina, Thermo Fisher Scientific	Fusion and gene expression analysis	GeneGlobe access
		Human, mouse	Illumina	Quantification and identification of T-cell receptor CDR3 region for clonotype determination	GeneGlobe access
		Any	Illumina	Transcript discovery and differential gene expression from single eukaryotic cells, enriched cell populations and RNA-seq from limited samples, including viral RNA	
		Any	Illumina, Thermo Fisher Scientific	Identification and quantification of miRNA, piRNA and other small RNAs	RAP access
UPX support	QIAseq FastSelect rRNA removal included	Human, mouse, rat, bacteria, fish, fly, worm, plant, yeast**	Illumina	Transcript identification, fusion gene discovery and high-throughput gene expression	RAP access
	QIAseq FastSelect rRNA removal included	Human, mouse, rat, bacteria, fish, fly, worm, plant, yeast**	Illumina	Transcript identification and fusion gene discovery	RAP access

§ 1–10 ng of enriched mRNA; usually achieved by starting with 100 ng of total RNA and using the mRNA enrichment protocol included with the kit.
¶ 1–10 ng of depleted RNA; usually achieved by starting with 100 ng of total RNA and removing ribosomal RNA and globin RNA (for applications from blood).
** QIAseq UPXome RNA Library Kits and QIAseq FastSelect RNA Library Kits also available without QIAseq FastSelect rRNA removal reagents.

RNA detection and quantification using digital PCR and real-time qPCR

We offer a wealth of optimized products for digital PCR and qPCR. Our reagents, assays, instruments and analysis tools help you detect RNA targets with confidence whichever RNA quantitation method you use.

Sensitive analysis by digital PCR

The increased precision of digital PCR can provide higher resolution in many aspects of gene expression and miRNA analysis. It enables monitoring finer changes with great sensitivity from very limited starting material.

QIAcuity® Digital PCR System for fast, precise results

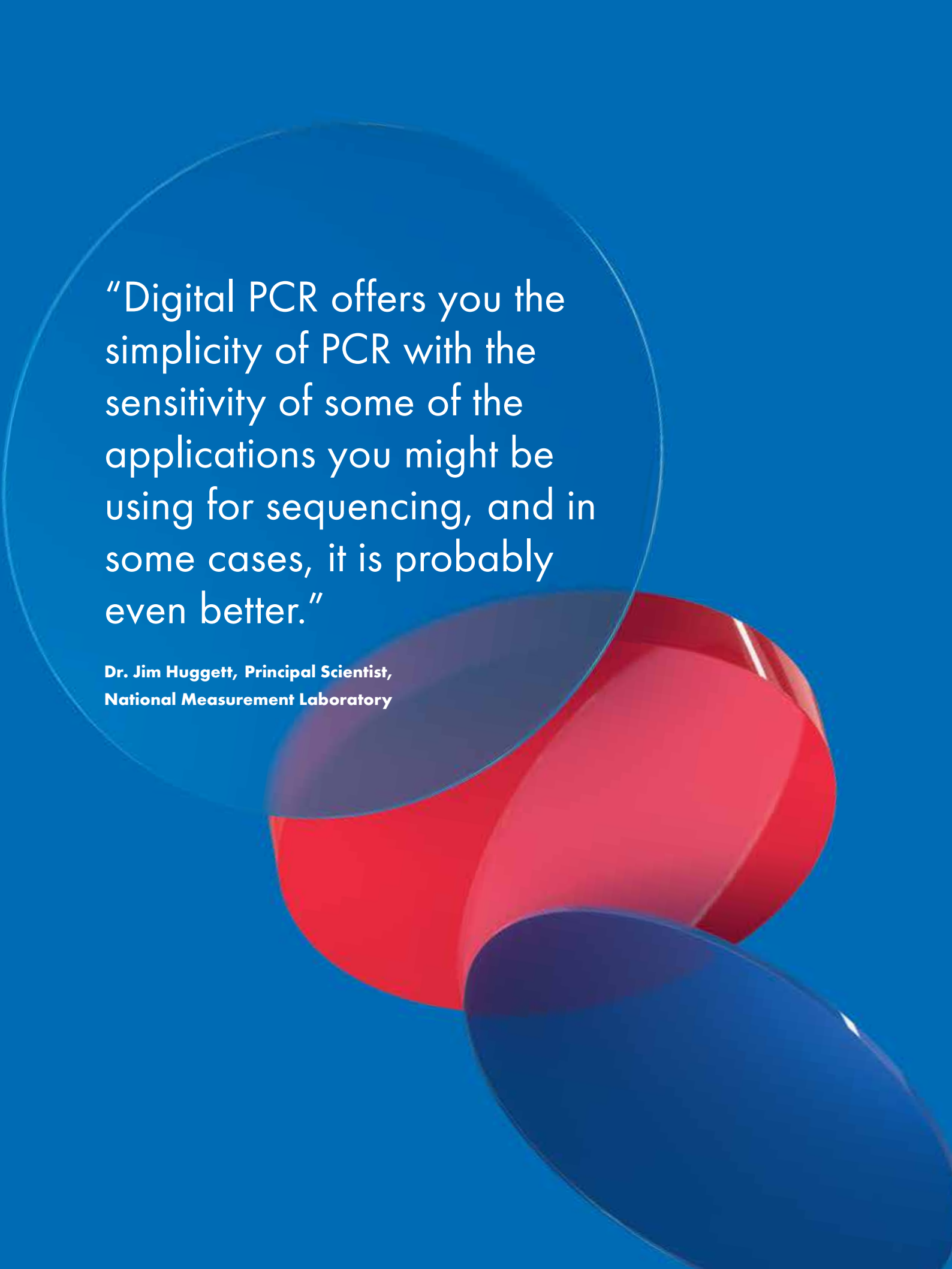
Our QIAcuity Digital PCR System seamlessly integrates a standard dPCR workflow of partitioning, thermocycling and imaging into a walk-away automated platform with minimal hands-on time.

Instrument	Featured technology	Key features
QIAcuity Digital PCR System	Microfluidic, nanoplate-based, fully integrated system	• Multiplexing of up to 5 target RNA molecules in a given assay • From low to ultra-high throughput • Up to 8 plates and up to 1248 samples in one run • Rapid results in 2 hours for up to 96 samples and in 8 hours for up to 1248 samples

Compatible reagents and accessories for digital PCR

It is easy to find the right consumables to match your workflow needs:

- QIAcuity OneStep Advanced Probe Kit
- QIAcuity Probe PCR Kit
- QIAcuity EG (EvaGreen) PCR Kit
- QIAcuity Nanoplates and Accessories


"Digital PCR offers you the simplicity of PCR with the sensitivity of some of the applications you might be using for sequencing, and in some cases, it is probably even better."
Dr. Jim Huggett, Principal Scientist,
National Measurement Laboratory

Did you know?

Our real-time qPCR assays can be easily transitioned to the QIAcuity Digital PCR System, providing you maximal flexibility for your experimental setup. **See how**.

Proven technologies for real-time qPCR

Our wide-ranging portfolio of instruments, reagents and assays for various RNA species ensures seamless and reliable analysis of gene expression and regulation using real-time qPCR.

Dedicated chemistries for reliable, efficient experiments

We offer various, devoted qPCR reagents including our QuantiNova® kits that include in-process controls for:

- Precise and reproducible quantitation by removing variables and errors
- Efficiency gains from streamlining experiments and laboratory workflows

	QuantiNova SYBR Green PCR Kit	QuantiNova Probe PCR Kit	QuantiNova Multiplex PCR Kit	QuantiNova Reverse Transcription Kit	QuantiNova SYBR Green RT PCR Kit	QuantiNova Probe RT PCR Kit	QuantiNova Multiplex RT PCR Kit	QuantiNova Pathogen +IC Kit
Starting material	cDNA or gDNA				RNA			DNA/RNA
Use in quantitative RT-PCR	2-step			cDNA synthesis	1-step			
Detection chemistry	SYBR® Green I	Probes	Probes		SYBR Green I	Probes	Probes	Probes
Multiplexing		2-plex	5-plex			2-plex	5-plex	4-plex
Internal control provided					Internal Control RNA			IC DNA & RNA and Control Assay
Visual pipetting control	✓	✓	✓		✓	✓	✓	✓
gDNA removal				✓		✓		
Room temperature set-up	✓	✓	✓		✓	✓	✓	✓

The right qPCR cycler for your application

For your experiments, you want low operating costs, high throughput, the ability to multiplex with fast analysis times and reliable reproducibility. We offer qPCR cyclers that exceed your expectations.

Instrument	Featured technology	Key features	
QIAquant cycler	Thermal cycler for real-time qPCR	• Fast cycling protocol, down to 30 minutes for 40 cycles • Multiplex detection of up to 5 different targets • Temperature ramping rate up to 8°C/s • Temperature uniformity down to ±0.15°C across the sample block • Gradient function for assay optimization • 96-well or 384-well plates	
Rotor-Gene Q cycler	Thermal cycler for real-time qPCR	• Outstanding thermal and optical performance due to rotary format • An unmatched optical range spanning UV to infrared wavelengths • State-of-the-art analyses supported by user-friendly software • Low maintenance and maximum convenience due to robust design • Support of high-resolution melting analysis (HRM) • 36-, 72- and 100-well rotor	

Did you know?

You can eliminate tedious manual pipetting steps in your sample and PCR assay setup to reduce human error, standardize results, increase productivity and gain peace of mind with the **QIAgility® instrument**:

- Rapid, high-precision setup in almost all plate and tube formats
- Easy-to-use software with no special programming required
- Optimized protocols for fast results

A full range of PCR assays and panels

Our real-time qRT-PCR portfolio is the most advanced when it comes to various RNA species applications. And, our offering has expanded to cover dPCR, too.

We offer complete, dedicated systems with an unparalleled catalog of predesigned PCR assays and panels, plus the ability to customize your own experiments using our advanced design algorithms. In addition, our assays and panels are powered by LNA technology, which results in:

- Precise and reproducible quantification and profiling of any miRNA, mRNA or lncRNA targets
- Unmatched specificity and sensitivity with same assays for dPCR and qRT-PCR
- One- or two-step procedures without the need of pre-amplification even for miRNA qRT-PCR profiling

Did you know?

For ultra-sensitive and specific miRNA detection by in situ hybridization (ISH) or northern blotting, you can rely on the **miRCURY LNA miRNA Detection Probes**, designed with optimal LNA positioning to achieve high sequence specificity, low secondary structure and minimal self-annealing.

Using our **one-day FFPE ISH protocol** and premixed ISH Buffer, you get an exceptional FFPE ISH image within hours.

PCR system	Targets	Technology	Type of detection	cDNA synthesis	PCR reaction	Assays	Panels	Complementary data analysis tools
QuantiNova LNA PCR	mRNA, lncRNA	Digital PCR	EvaGreen	QuantiNova Reverse Transcription Kit	QIAcuity EG PCR Kit	>1.3 million QuantiNova LNA PCR Assays covering all human, mouse, rat ENSEMBL transcripts		QIAcuity
				QIAcuity OneStep Advanced Probe Kit				
		Real-time qPCR	SYBR Green	QuantiNova Reverse Transcription Kit	QuantiNova SYBR Green PCR Kit		>400 QuantiNova LNA PCR Focus Panels	GeneGlobe
				QuantiNova SYBR Green RT-PCR Kit			Custom QuantiNova LNA PCR Panels	
QuantiNova LNA Probe PCR	mRNA, lncRNA	Real-time qPCR	Hydrolysis probe	QuantiNova Reverse Transcription Kit	QuantiNova Probe PCR Kit	>1.3 million QuantiNova LNA PCR Assays covering all human, mouse, rat ENSEMBL transcripts	>400 QuantiNova LNA Probe PCR Focus Panels	GeneGlobe
				QuantiNova Probe RT-PCR Kit			Custom QuantiNova LNA Probe PCR Panels	
miRCURY LNA PCR	miRNA	Digital PCR	EvaGreen	miRCURY LNA RT Kit	QIAcuity EG PCR Kit	>30,000 miRCURY LNA PCR Assays covering all species		QIAcuity
		Real-time qPCR	SYBR Green		miRCURY LNA SYBR Green PCR Kit		>50 miRCURY LNA PCR Focus Panels	GeneGlobe
						Custom miRCURY LNA PCR Assays	Custom miR-CURY LNA PCR Panels	
miRCURY LNA Probe PCR	miRNA	Real-time qPCR	Hydrolysis probe	miRCURY LNA RT Kit	miRCURY LNA Probe PCR Kit	>30,000 miRCURY LNA Probe PCR Assays covering all species	>50 miRCURY LNA PCR Focus Panels	GeneGlobe
						Custom miRCURY LNA Probe PCR Assays	Custom miR-CURY LNA PCR Panels	

Expert-curated genomic knowledge, together with bioinformatics software and services, for actionable insight

Bioinformatics solutions

CLC Genomics Workbench

- Enables comprehensive analysis and visualization of data from all major NGS platforms

Ingenuity Pathway Analysis (IPA)

- Provides integrative analysis and visualization capabilities that enable biologically meaningful interpretation of complex 'omics data with evidence-backed insights

Complete workflow design

GeneGlobe Design & Analysis Hub

- Quickly and easily explore targets in their scientific context
- Find and customize the right products to study those targets
- Analyze the data and plan your follow-up studies based on insights gained from embedded PCR and NGS analysis pipelines
- Includes the **RNA-seq Analysis Portal (RAP)** for all QIAseq miRNA-seq and RNA-seq Kits

Did you know?

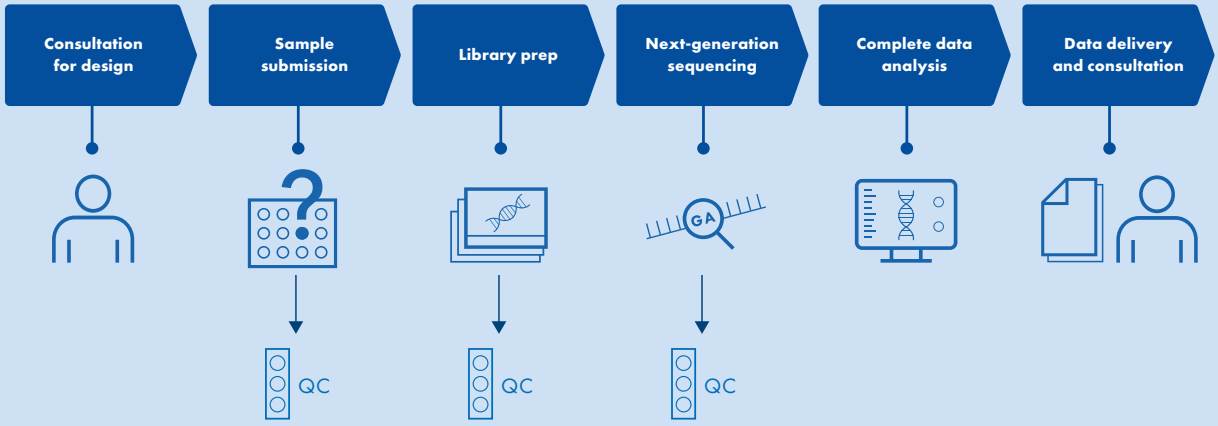
You can download one of our expertly designed signaling pathway posters for display in your office or lab. Just watch our short video clips that show how GeneGlobe supports each step of the research cycle. Then take the fun quiz to gain entry and retrieve your favorite poster. **Explore GeneGlobe**.

Expert research project services

Genomic Services

- Extend your in-house resources quickly and conveniently
- Ensure your data is high quality using our expertise and tailored services
- Get support with just the time-consuming parts of your project or with your entire Sample to Insight journey with our unique spectrum of innovative technologies
- Benefit from expert consultation and make the best decisions to achieve your goal

Let us support your project every step of the way



Visit our **RNA resource center** and advance your exploration of the RNA universe.

Ordering	**www.qiagen.com/shop**
Technical Support	**www.support.qiagen.com**
Website	**www.qiagen.com**