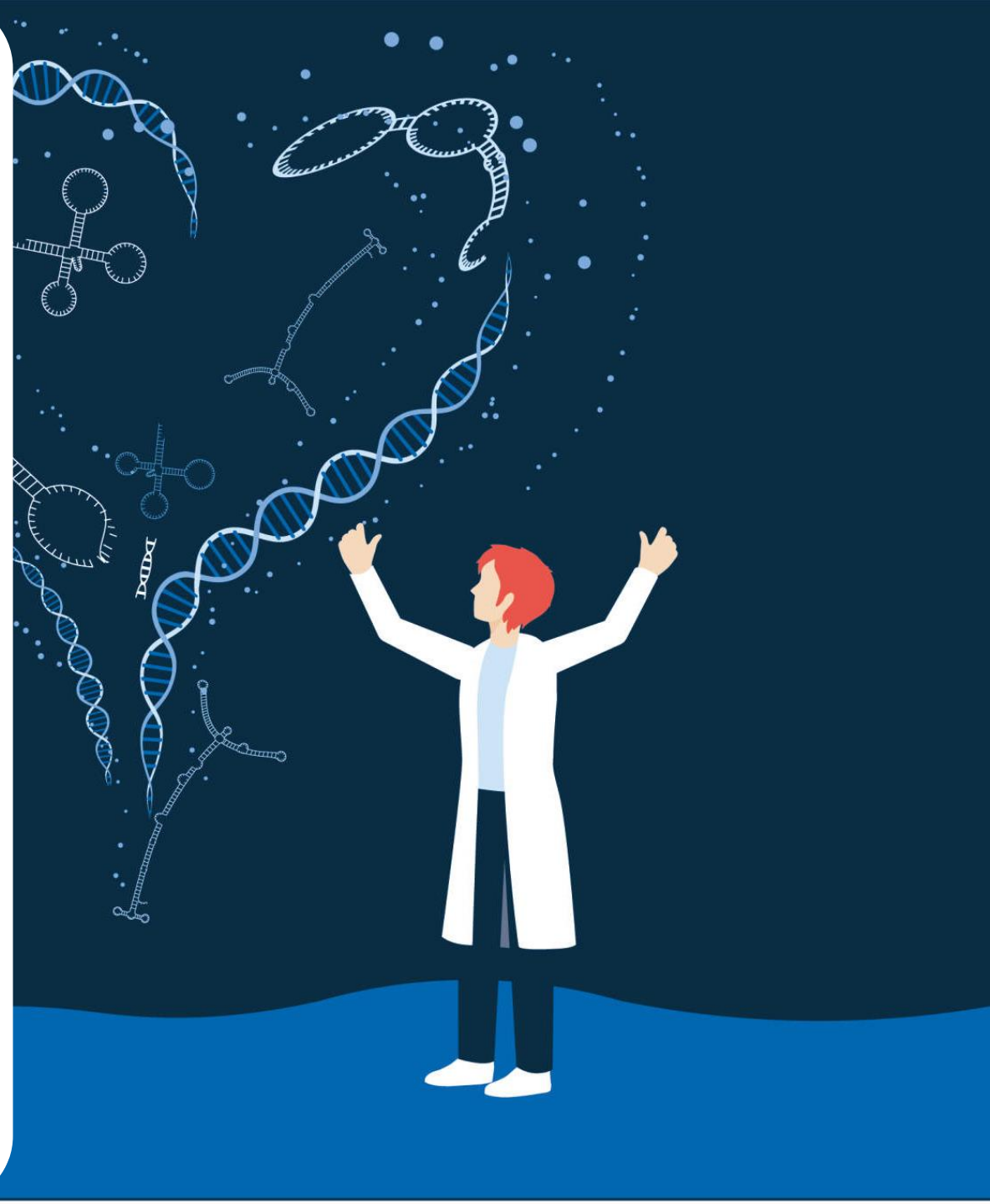




# miRNA sample preparation



# Legal disclaimer



QIAGEN products shown here are intended for molecular biology applications. These products are not intended for the diagnosis, prevention or treatment of a disease.

For up-to-date licensing information and product-specific disclaimers, see the respective QIAGEN kit instructions for use or user operator manual. QIAGEN instructions for use and user manuals are available at [www.qiagen.com](http://www.qiagen.com) or can be requested from QIAGEN Technical Services (or your local distributor).

# miRNA purification



Kits for purification of total RNA, including miRNA



microRNA and total RNA purification from tissues & cells



microRNA and total RNA purification from FFPE tissue & stabilized tissue



microRNA and total RNA purification from blood, plasma and serum



microRNA and total RNA purification from exosomes



Automated microRNA and total RNA purification

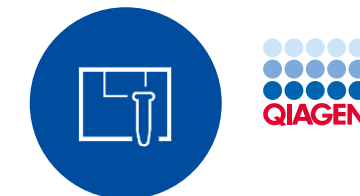


Beyond sample prep – QIAGEN microRNA workflow



Selecting the right kit – miRNA isolation

# Kits for purification of total RNA, including miRNA



Sample	Kit	Features	Processing	Sample amount	Format	Elution volume
<b>Single-spin</b>						
	<a href="#">miRNeasy Tissue/Cells Advanced Mini (50)</a>	Phenol-free RNA/ miRNA (>18 nt) purification from tissue and cells	Manual/ centrifugation or <a href="#">QIAcube</a>	Up to 30 mg frozen tissue (15 mg stabilized) or up to $1 \times 10^7$ cells	Mini column	>30 $\mu$ L
	<a href="#">miRNeasy Mini (50)</a>	QIAzol-based RNA/ miRNA (>18 nt) purification	Manual/ centrifugation or <a href="#">QIAcube</a>	50 mg (100 mg for adipose) tissue, $1 \times 10^7$ cells	Mini column	>30 $\mu$ L
<b>Cells and tissue</b>	<a href="#">AllPrep DNA/RNA/miRNA Universal (50)</a>	High yields of DNA, RNA, and miRNA from the same sample	Manual/ centrifugation or <a href="#">QIAcube</a>	Up to $1 \times 10^7$ cells, up to 30 mg tissue, up to 1,5 mL blood (maximum of $1 \times 10^7$ Leukocytes)	Mini column	>30 $\mu$ L
	<a href="#">miRNeasy Tissue/Cells Advanced Micro (50)</a>	Phenol-free RNA/ miRNA (>18 nt) purification from small samples	Manual/ centrifugation	Up to 5 mg tissue, up to $1 \times 10^6$ cells	Micro column	Default 20 $\mu$ L, min. 10 $\mu$ L
	<a href="#">miRNeasy Micro (50)*</a>	QIAzol-based RNA/ miRNA (>18 nt) purification optimized for small samples	Manual/ centrifugation or <a href="#">QIAcube</a>	5 mg (10 mg for adipose) tissue, $1 \times 10^6$ cells	Micro column	>10 $\mu$ L
<b>FFPE tissue and stabilized human tissue</b>	<a href="#">RNeasy FFPE (50)</a>	RNA/miRNA (>18 nt) isolation from FFPE tissue	Manual/ centrifugation or <a href="#">QIAcube</a>	$1 \times 5 \mu$ m to $4 \times 10 \mu$ m sections	Mini column	14–30 $\mu$ L
	<a href="#">PAXgene Tissue RNA/miRNA (50)</a>	To be used in conjunction with PAXgene Tissue Containers, for stabilized human tissue	Manual (centrifugation)	4 x 15 x 15 mm of human tissue fixed and stabilized in PAXgene Tissue Containers	Mini column	14–40 $\mu$ L
<b>Stabilized blood</b>	<a href="#">PAXgene Blood miRNA (50)</a>	For miRNA/RNA isolation from blood stabilized in PAXgene tubes	Manual/ centrifugation or <a href="#">QIAcube</a>	2.5 mL PAXgene stab. blood	Mini column	80 $\mu$ L
<b>Serum, plasma</b>	<a href="#">miRNeasy Serum/Plasma Advanced (50)</a>	Phenol-free RNA/ miRNA (> 18 nt) purification from small volumes of serum and plasma	Manual/ centrifugation or <a href="#">QIAcube</a>	200–600 $\mu$ L of serum/ plasma	Micro column	>10 $\mu$ L
	<a href="#">miRNeasy Serum/Plasma (50)</a>	QIAzol-based RNA/ miRNA (> 18 nt) purification from small volumes of serum and plasma	Manual/ centrifugation or <a href="#">QIAcube</a>	200 $\mu$ L serum/ plasma	Micro column	>10 $\mu$ L
<b>Prefiltered plasma, cerebrospinal fluid, cell culture supernatants and urine for RNA/ miRNA isolation from exosomes</b>	<a href="#">exoRNeasy Midi (50)</a>	For purification of exosome-derived RNA/ miRNA (>18 nt)	Manual/ centrifugation or <a href="#">QIAcube</a>	Max 1 mL serum or plasma, max. 4 mL urine, max. 2 mL CSF, max 8 mL cell culture supernatant	Midi/micro column	>10 $\mu$ L
	<a href="#">exoRNeasy Maxi (50)</a>	For purification of exosome-derived RNA/ miRNA (>18 nt)	Manual/ centrifugation or <a href="#">QIAcube</a>	Max 4 mL serum or plasma, max. 16 mL urine, max. 8 mL CSF, max 32 mL cell culture supernatant	Midi/micro column	>10 $\mu$ L

\*Supplementary Protocol for RNA/miRNA isolation from plants

# Kits for purification of total RNA, including miRNA



Sample	Kit	Features	Processing	Sample amount	Format	Elution volume
<b>96-well</b>						
	<a href="#">miRNeasy 96 (4 x 96)</a>	QIAzol-based RNA/miRNA purification in 96-well format	Centrifugation, QIAvac/ Centrifugation	50 mg (100 mg for adipose) tissue, 1 x 10 <sup>7</sup> cells	96-well plate	Min. 2 x 45 µL
<b>Cells and tissue</b>	<a href="#">miRNeasy 96 Tissue/ Cells Advanced (4 x 96)</a>	Phenol-free RNA/miRNA purification in 96-well format	Centrifugation, QIAvac/ Centrifugation	Up to 30 mg frozen tissue (15 mg stabilized) or up to 1 x 10 <sup>7</sup> cells	96-well plate	70-100 µL, min. 45 µL
<b>Kits for automation platforms</b>						
	<a href="#">EZ2 RNA/miRNA Tissue/Cells (48)</a>	Automated purification of RNA and miRNA from human and animal cells and tissues on the EZ2	Automated EZ2	Up to 30 mg (frozen) or 15 mg (stabilized) tissue or 10 mg frozen spleen or lung tissue, or up to 5 x 10 <sup>6</sup> cells	Cartridge/ mag beads	50 or 100 µL
<b>Cells and tissue</b>	<a href="#">QIAcube HT RNA (5x 96), QIAzol Lysis Reagent (200 mL)</a>	Automated purification of total RNA or total RNA, including miRNA, from animal and human cells and tissue samples on the QIAcube HT system	Automated QIAcube HT	Up to 5 x 10 <sup>5</sup> cells, homogenized in 140 µL Buffer RLT	96-well plate	110 µL
	<a href="#">QIASymphony RNA (192)</a>	Automated purification of total RNA, or total RNA including miRNA and other small RNAs, from 1–96 samples on the QIASymphony SP	Automated QIASymphony	For 2 x 96 samples: ≤3 x 10 <sup>6</sup> cultured cells, ≤20 mg easy-to-lyse tissue, ≤20 mg fibrous tissue, For 2 x 48 samples: 3 x 10 <sup>6</sup> –1 x 10 <sup>7</sup> cultured cells ≤50 mg easy-to-lyse tissue	Cartridge/ mag beads	50 or 100 or 200 µL
<b>Serum, plasma</b>	<a href="#">miRNeasy 96 Advanced QIAcube HT (5 x 96)</a>	Phenol-free miRNA isolation from human, mouse or rat serum and plasma samples	Automated QIAcube HT	Up to 200 µL human, mouse or rat serum and plasma samples	96-well plate	80–100 µL
<b>Stabilized blood</b>	<a href="#">QIASymphony PAXgene Blood RNA (96)</a>	Automated purification of intracellular RNA (including miRNAs) from stabilized blood	Automated QIASymphony	2.5 ml whole blood (4.6 x 10 <sup>6</sup> – 1.1 x 10 <sup>7</sup> leukocytes/mL)	Cartridge/ mag beads	80 or 120 or 200 µL
<b>Solution-based</b>						
	<a href="#">QIAzol (200 mL)</a>	Phenol/guanidine-based, optimized for fatty tissue	Manual	Scalable, recommended in combination with RNeasy silica membrane technology	Reagent	N.A.

# miRNeasy Tissue/Cells Advanced Kits – phenol-free miRNA purification



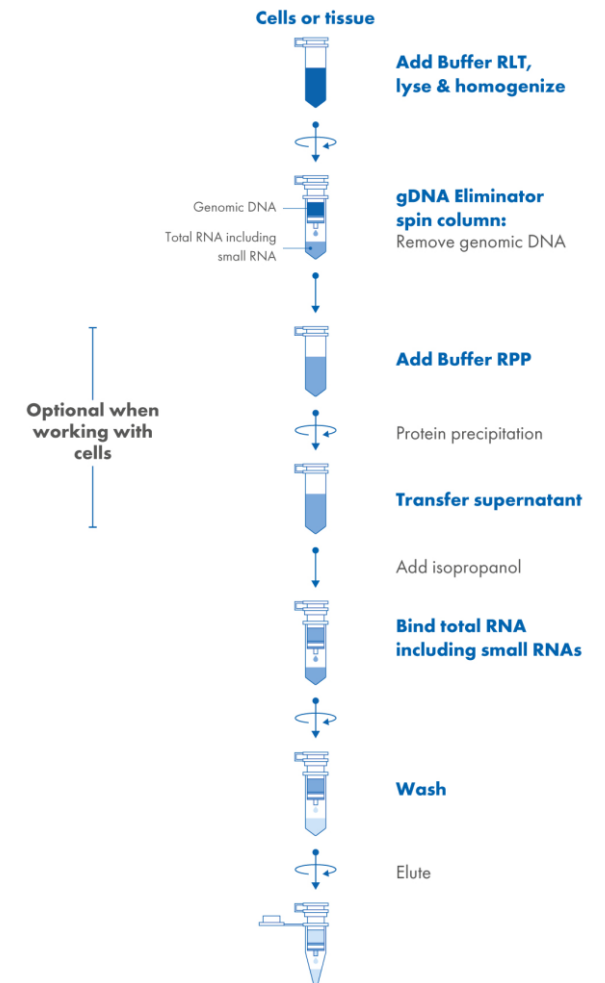
## For phenol-free purification of micro-RNA and total RNA from tissues and cells

- Phenol-free alternatives to classical miRNeasy Kits – no need for phase separation or working under a hood
- Fast and convenient gDNA removal due to the advanced chemistry and gDNA Eliminator Columns/Plate
- Advanced chemistry is available in a micro-, mini or 96-well format
- Efficient enrichment of miRNA and RNAs <200 nucleotides
- Consistent, pure RNA for all downstream applications



	miRNeasy Tissue/Cells Advanced Micro Kit	miRNeasy Tissue/Cells Advanced Mini Kit	miRNeasy 96 Tissue/Cells Advanced Kit
<b>Format</b>	Micro column	Mini column	96-well plate
<b>Target</b>	RNA <18 nt	RNA <18 nt	RNA <18 nt
<b>Sample material</b>	Up to 5 mg tissue, up to 1 x 10 <sup>6</sup> cells	Up to 30 mg frozen tissue (15 mg stabilized) or up to 1 x 10 <sup>7</sup> cells	Up to 30 mg frozen tissue (15 mg stabilized) or up to 1 x 10 <sup>7</sup> cells
<b>Elution volume</b>	Default 20 µL, min. 10 µL	>30 µL	70–100 µL, min. 45 µL
<b>Processing</b>	Manual (centrifugation), automated		Manual (centrifugation or centrifugation/vacuum)
<b>Automation</b>	QIAcube Connect		QIAcube HT
<b>gDNA removal</b>	gDNA Eliminator Columns		gDNA Eliminator Plate
<b>Processing time</b>	21 samples in less than 55 minutes		Varies based on processing (>36 min for centrifugation)

## miRNeasy Tissue/Cells Advanced Kit Procedure



# miRNeasy Tissue/Cells Advanced Kits – phenol-free miRNA purification



## Easier handling

- No phase separation required
- Faster procedure
- Less contamination



## Odorless

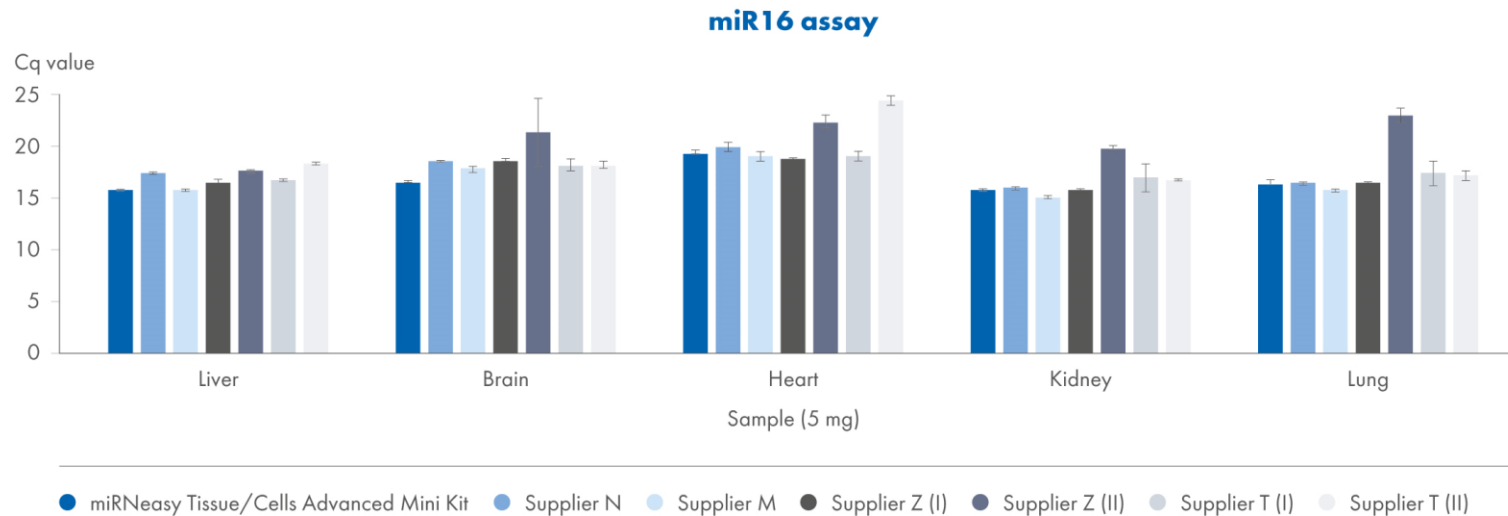
- Work at the bench
- No hood required
- No special waste management necessary



## Less toxic

- Less exposure to health hazards
- Less harmful to your health
- Better for the environment

## The miRNeasy Tissue/Cells Advanced Mini Kit shows a comparable or better performance than kits from other suppliers



- Total RNA including small RNA was isolated from 5 mg stabilized rat tissue (liver, brain, heart, kidney and lung) using the miRNeasy Tissue/Cells Advanced Mini Kit and 6 different kits from other suppliers
- Four microliters of recovered RNA, in a total volume of 20  $\mu$ l using the miRCURY System, was used for miRNA detection on the miR-16
- The miRNeasy Tissue/Cells Advanced Mini Kit shows a comparable or better performance than kits from other suppliers



[Prijbelski AD. et al. Accurate isoform discovery with IsoQuant using long reads. \*Nat Biotechnol.\* 2023;41\(7\):915–918](#)

[Chryplewicz A., et al. Cancer cell autophagy, reprogrammed macrophages, and remodeled vasculature in glioblastoma triggers tumor immunity. \*Cancer Cell.\* 2022;40\(10\):1111–1127](#)

Data obtained through experiments conducted by QIAGEN R&D in Hilden, Germany.

# miRNeasy – efficient miRNA isolation including miRNA from difficult-to-lyse tissues



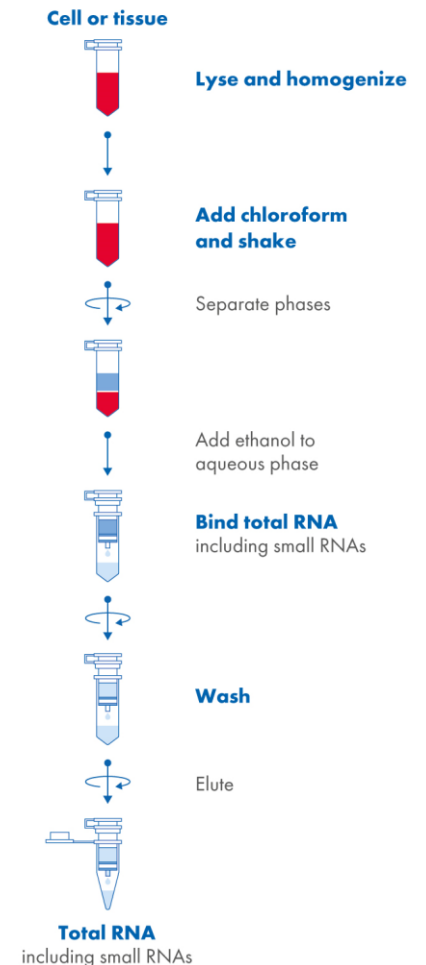
## Effective microRNA (miRNA) and total RNA purification, even from small samples

- Efficient enrichment of miRNA and RNAs <200 nucleotides
- Protocols for copurification or isolation of separate fractions
- High-purity RNA suitable for all downstream applications
- Automatable protocols and high-throughput processing in 96-well format
- Combine phenol/guanidine-based lysis of samples with silica membrane-based purification



	miRNeasy	miRNeasy Mini	miRNeasy 96
<b>Format</b>	Micro column	Mini column	96-well plate
<b>Target</b>	RNA <18 nt	RNA <18 nt	RNA <18 nt
<b>Sample material</b>	5 mg (10 mg for adipose) tissue, 1 x 10 <sup>6</sup> cells	50 mg (100 mg for adipose) tissue, 1 x 10 <sup>7</sup> cells	50 mg (100 mg for adipose) tissue, 1 x 10 <sup>7</sup> cells
<b>Elution volume</b>	Default 14 µL, min. 10 µL	>30 µL	Min. 2 x 45 µL
<b>Processing</b>	Manual (centrifugation), automated		Manual (centrifugation or centrifugation /vacuum)
<b>Automation</b>	QIAcube Connect		-
<b>gDNA removal</b>	QIAzol, additional trace amounts of gDNA can be removed via optional On-Column DNase Digestion		
<b>Processing time</b>	21 samples in less than 55 minutes		

## miRNeasy Mini Procedure

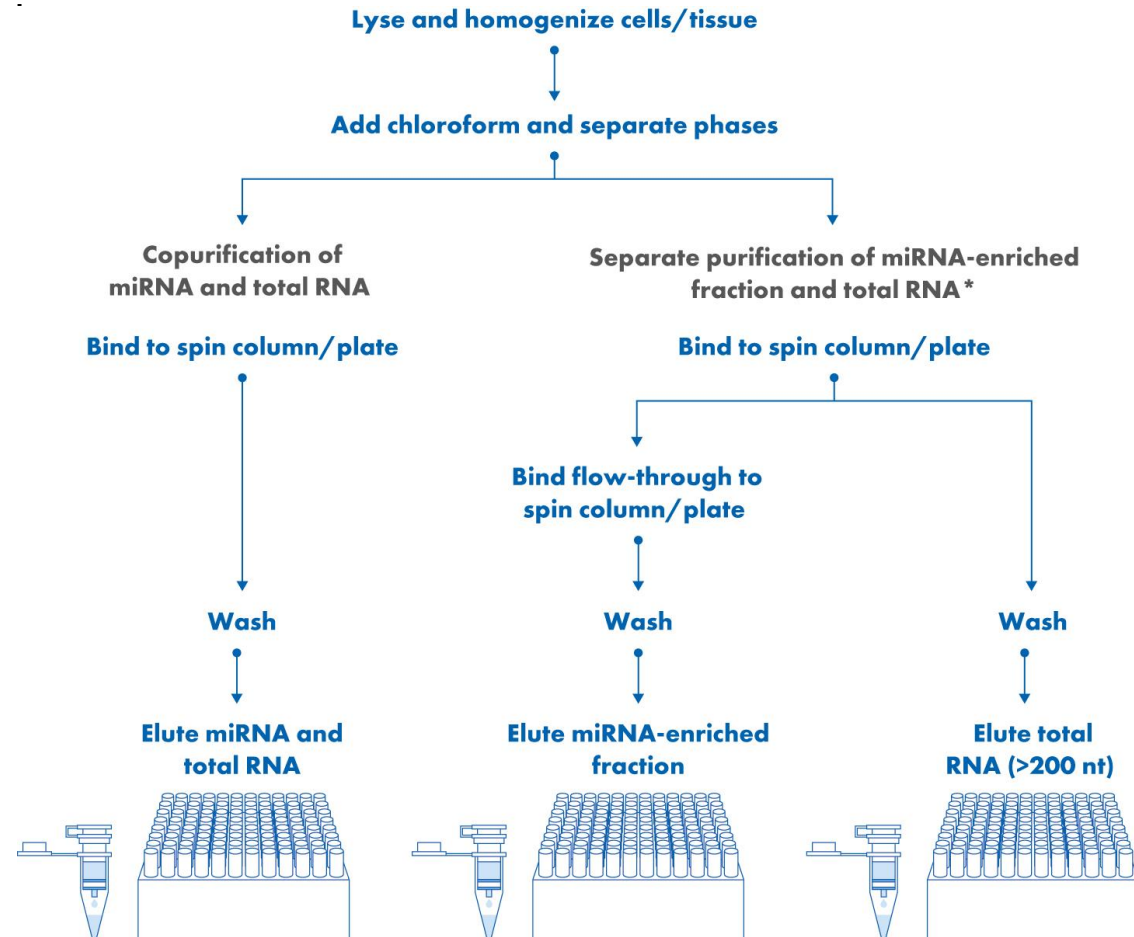




# miRNeasy – efficient miRNA isolation including miRNA from difficult-to-lyse tissues

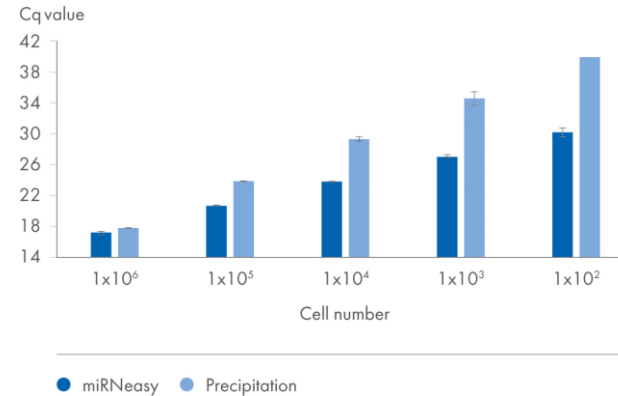


Either co-purify miRNA/total RNA or a miRNA-enriched fraction



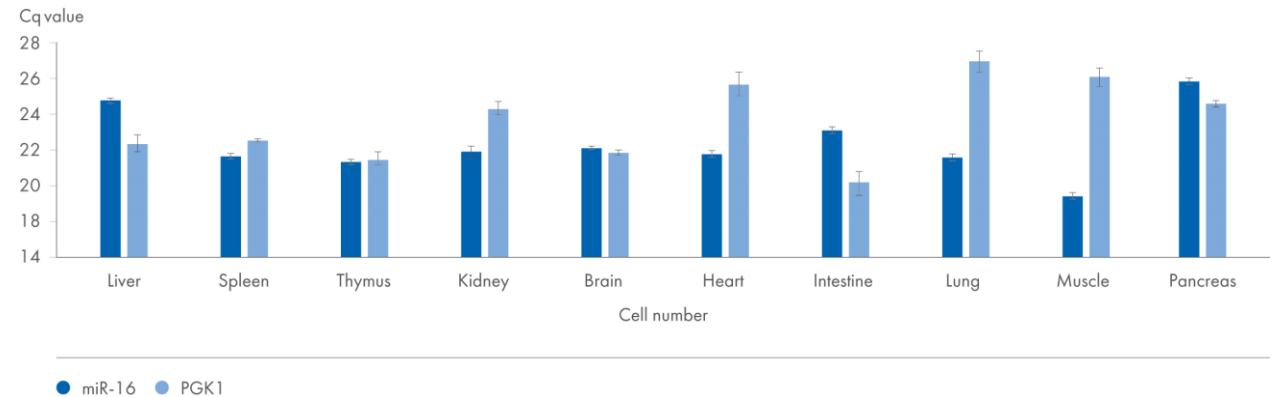
\*For the recovery of the miRNA-enriched fraction, RNeasy MinElute Cleanup Kit (cat. no. 74204) is required

miRNeasy Kits outperform TRIzol regarding purity and yield



- Total RNA including miRNA was purified from a range of amounts of Jurkat cells using the miRNeasy Mini Kit or TRIzol Reagent
- Results showed that Cq values were lower after purification using the miRNeasy Kit, indicating that higher amounts of miRNA were purified than using TRIzol

Efficient copurification from miRNA & total RNA from various tissues



- Total RNA including miRNA was purified from 25 mg of a range of RNaprotect Tissue Reagent stabilized rat tissues using the miRNeasy 96 Kit
- Results showed successful detection of both PGK1 mRNA (large RNA) and miR-16 (small RNA) from the same eluates

# miRNeasy Advanced vs. miRNeasy

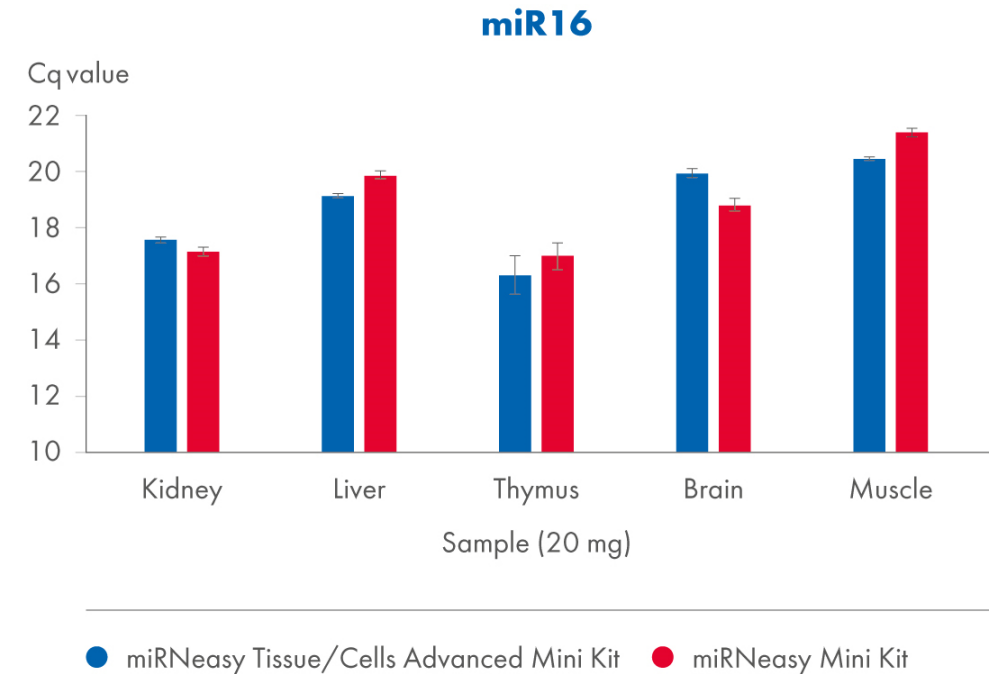


	<u>miRNeasy/ QIAzol based kits</u>		<u>Phenol-free miRNeasy Advanced kits</u>	
<b>Environmental impact</b>	Phenol/guanidine-based QIAzol Lysis Reagent	- -	Less toxic, phenol-free, no special waste management required	++
<b>gDNA removal</b>	QIAzol, optional: On-column DNA digest	-	gDNA Eliminator Columns	+++
<b>Preparation time</b>	Longer procedure	-	Fast procedure due to gDNA Eliminator Column/Plate	+++
<b>Difficult to lyse tissue (e.g., lipid tissue)</b>	Well-suited even for difficult to lyse tissues/samples	+++	Not well suited	-
<b>Handling</b>	Requires phase separation, safety hood required, smelly	- -	Easier handling, does not require phase separation, odorless	++
<b>Popularity</b>	More than 27,000 citations	+++	New kits, therefore, fewer citations in the scientific literature	-
<b>Formats</b>	Micro, mini and 96-well	+	Micro, mini and 96-well	+

## Did you know?

Phenol is not only harmful to human health but also has the potential to bioaccumulate in living organisms, particularly in aquatic ecosystems. Go phenol-free to protect the environment and your health and enjoy the easier handling of the Advanced kits.

## High recovery of miRNA without the need for phenol



- Total RNA including small RNA was isolated from 20 mg frozen rat tissue using the miRNeasy Tissue/Cells Advanced Mini Kit (blue bars) and the miRNeasy Mini Kit (red bars)
- Both kits show comparable performance, even for difficult tissue types like muscle or brain.

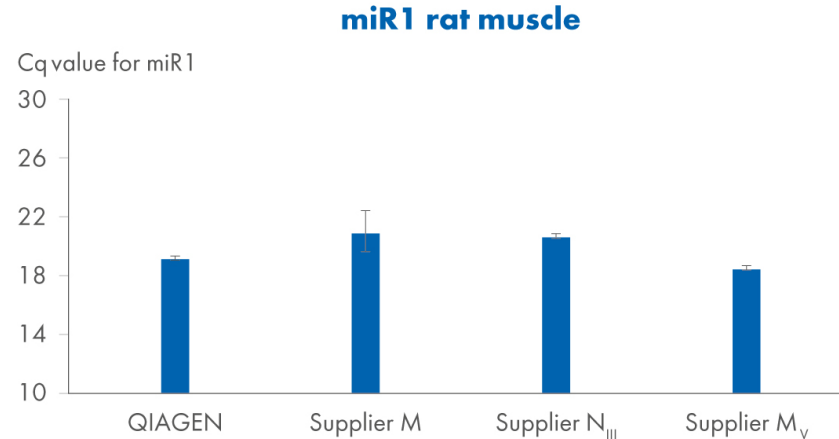
# AllPrep DNA/RNA/miRNA Universal Kit – simultaneous purification of gDNA and miRNA/RNA



## High yields of DNA, RNA, and miRNA from the same sample

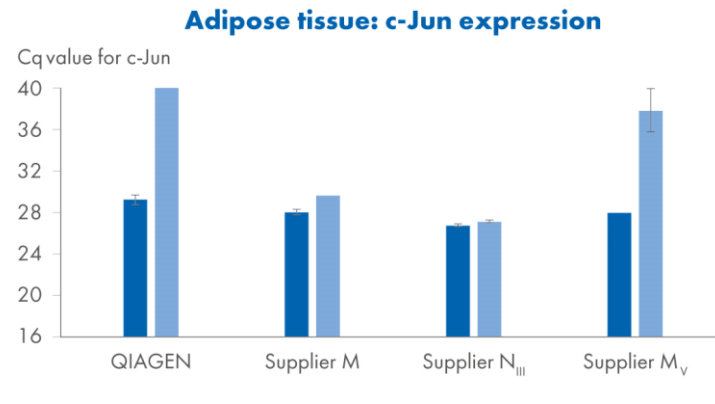
- Developed for difficult-to-lyse samples (e.g., fiber- or lipid-rich tissue)
- Delivers high-quality nucleic acids, ready for downstream use
- Preoptimized protocols for various sample types
- Convenient procedure that does not require the use of phenol

## AllPrep DNA/ RNA/miRNA Universal Kit delivered higher yields of miRNA



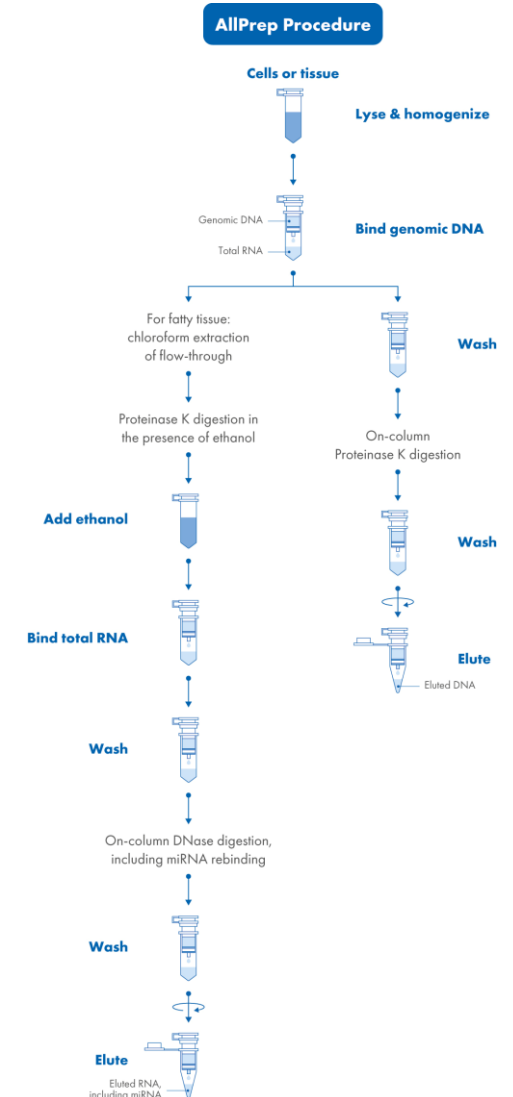
- miR1 expression levels in muscle tissue were investigated using miRNA isolated from the AllPrep DNA/RNA/miRNA Universal Kit and products from the indicated suppliers

## Unlike kits from other suppliers, AllPrep DNA/RNA/miRNA Universal Kit delivered high yields of pure RNA from difficult-to-lyse adipose tissue



● +RT ● -RT

Data obtained through experiments conducted by QIAGEN R&D in Hilden, Germany.



- To visualize contamination of RNA with genomic DNA, quantitative real-time PCR assays were performed with (+RT) or without (-RT) reverse transcriptase

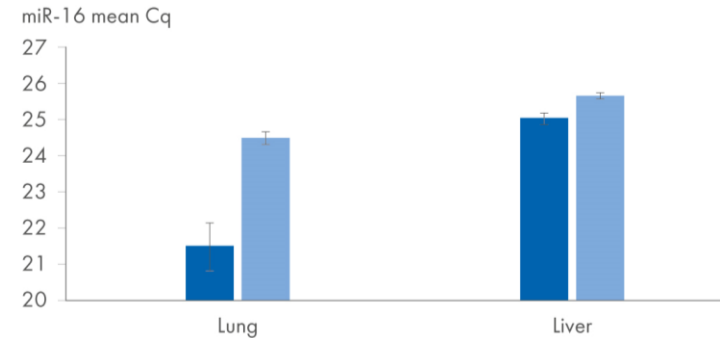
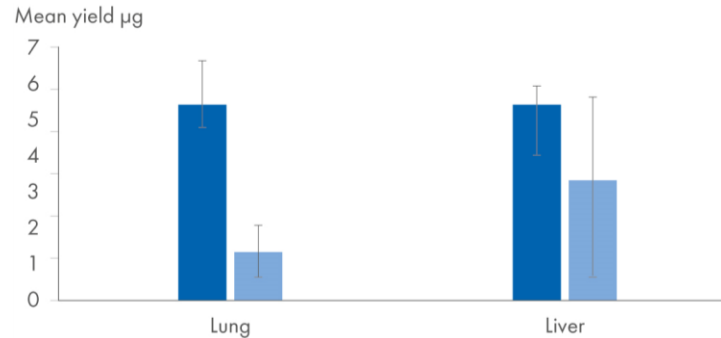
# miRNeasy FFPE Kit – microRNA and total RNA purification from FFPE tissue



## Purification of microRNA and total RNA from formalin-fixed, paraffin-embedded tissue sections

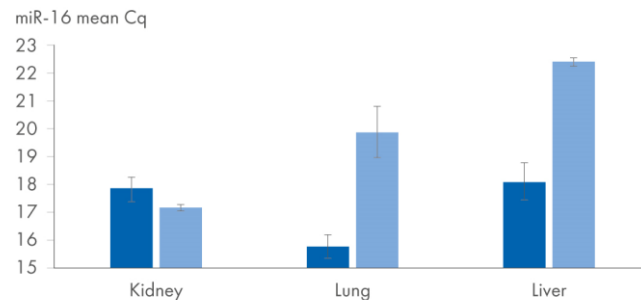
- Effective purification of miRNA and total RNA
- Novel method to overcome formalin crosslinking
- Efficient release of RNA without compromising integrity
- Streamlined protocol providing RNA in just 85 minutes

## Superior yields and performance



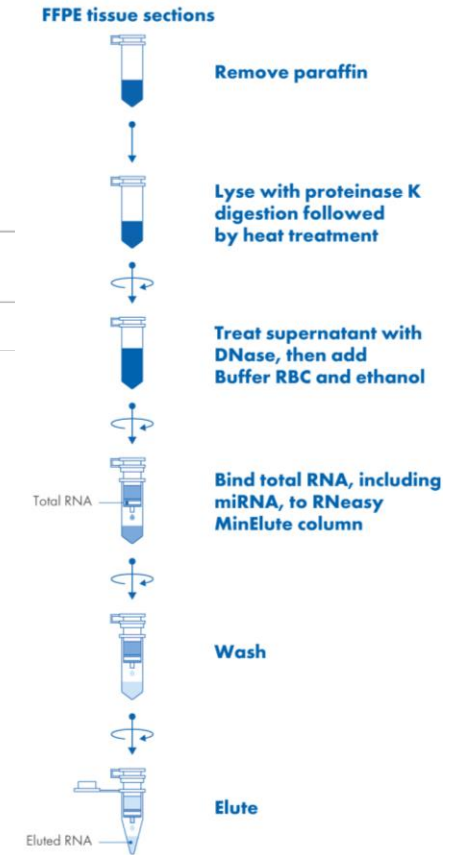
- RNA was purified from FFPE sections of the indicated rat tissues using either the miRNeasy FFPE Kit or a similar kit from Supplier A
- RNA yields were determined by measuring absorbance at 260 nm (A)
- Purified RNA was used as a template in quantitative, real-time RT-PCR assays for the miRNA miR-16 (B)

## Superior to phenol-chloroform extraction



- Total RNA including miRNA was purified from the indicated rat tissues using either the miRNeasy FFPE Kit or phenol-chloroform extraction
- Purified RNA was used as a template in quantitative, real-time RT-PCR assays for the miRNA miR-16

## miRNeasy FFPE Procedure



Data obtained through experiments conducted by QIAGEN R&D in Hilden, Germany.

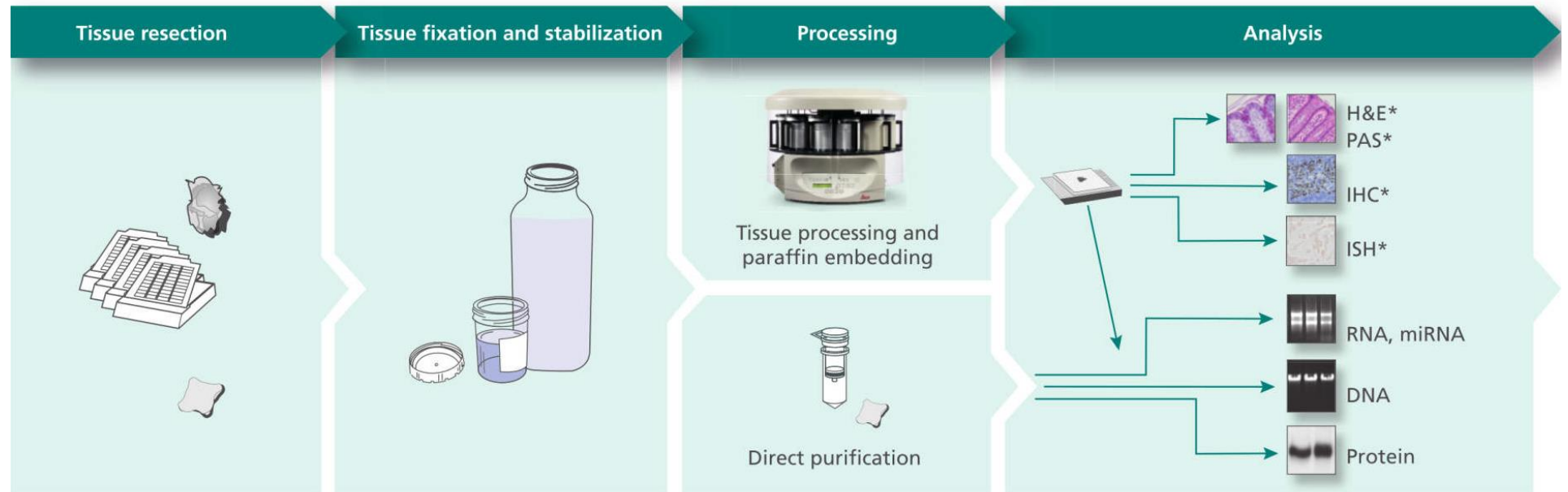
# Stabilization of RNA/miRNA from tissue samples followed by isolation using PAXgene Tissue RNA/miRNA Kit



The PAXgene Tissue System enables simultaneous preservation of histomorphology and biomolecules

## Purification of microRNA and total RNA from formalin-fixed, paraffin-embedded tissue sections

- Effective purification of miRNA and total RNA
- Novel method to overcome formalin crosslinking
- Efficient release of RNA without compromising integrity
- Streamlined protocol providing RNA in just 85 minutes



\*H&E: Hematoxylin and eosin; PAS: Periodic acid-Schiff stain; IHC: Immunohistochemistry; ISH: in situ hybridization

# microRNA and total RNA purification from blood, plasma and serum



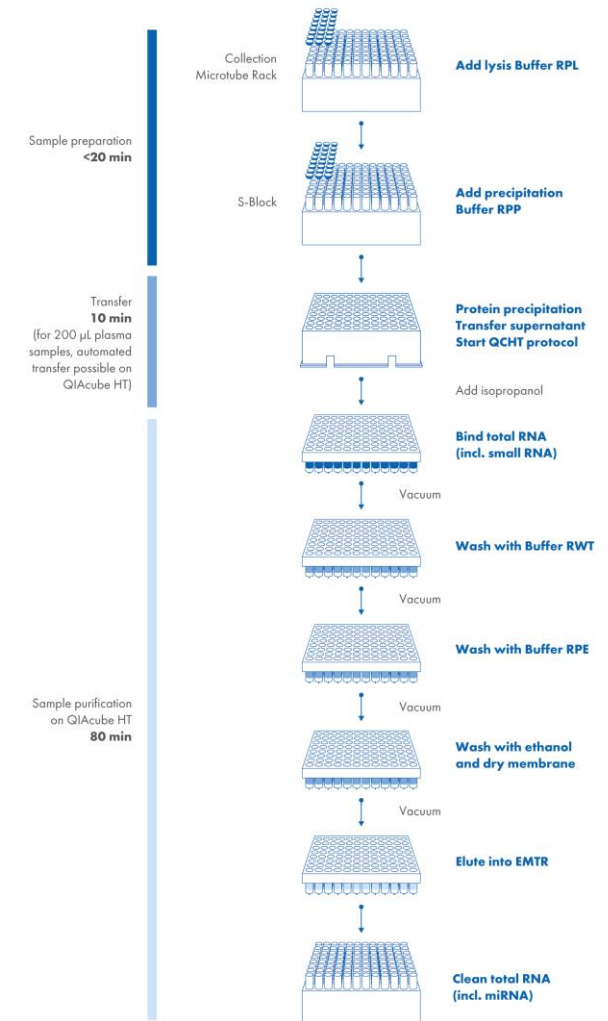
## Analysis of all cell-free RNAs inside and outside of vesicles

- Optimal miRNA yields from minimal plasma amounts (200 µL)
- MinElute columns allow for small elution volumes (approx. 20 µL)
- Consistent, pure RNA for all downstream applications
- Efficient lysis of exosomes to release exosomal miRNA

	<a href="#">miRNeasy Serum/Plasma Advanced</a>	<a href="#">miRNeasy Serum/Plasma</a>	<a href="#">miRNeasy 96 Advanced QIAcube HT (5 x 96)</a>
<b>Format</b>	Micro column	Micro column	96-well plate
<b>Target</b>	RNA <18 nt	RNA <18 nt	RNA <18 nt
<b>QIAzol</b>	No, phenol-free	Yes	No, phenol-free
<b>Sample material</b>	200 µL serum/plasma	200 µL serum/plasma	Up to 200 µL serum/plasma
<b>Features</b>	No laborious phase separation or working under the hood		Convenient high-throughput automated solution on the QIAcube HT with minimal hands-on time
<b>Elution volume</b>	10–20 µL	10–20 µL	80–100 µL
<b>Processing</b>	Manual (centrifugation), automated		Automated
<b>Automation</b>	QIAcube Connect		QIAcube HT

- Advanced chemistry: Phenol-free alternatives to classical miRNeasy Kits
- miRNeasy Serum/Plasma Advanced: UCP (ultra clean production) columns provide ultra-clean eluates suited for any downstream application

## miRNeasy 96 Advanced QIAcube HT Procedure

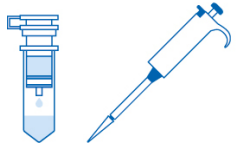


# miRNeasy Serum/Plasma Advanced for non-toxic miRNA isolation

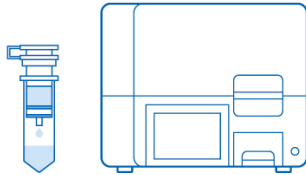


## miRNeasy Serum/Plasma Advanced Kit

### Manual

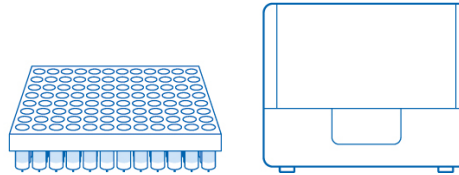


### on QIAcube Connect

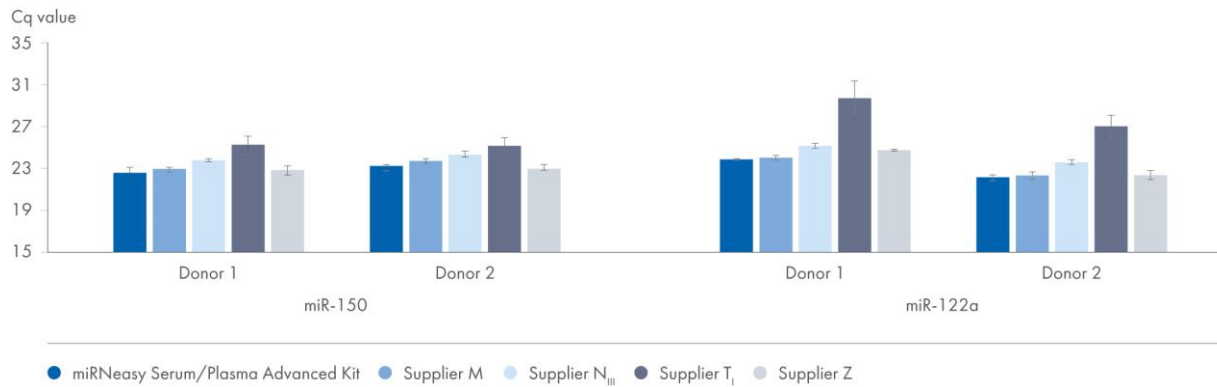


## miRNeasy 96 Advanced QIAcube HT Kit

### on QIAcube HT

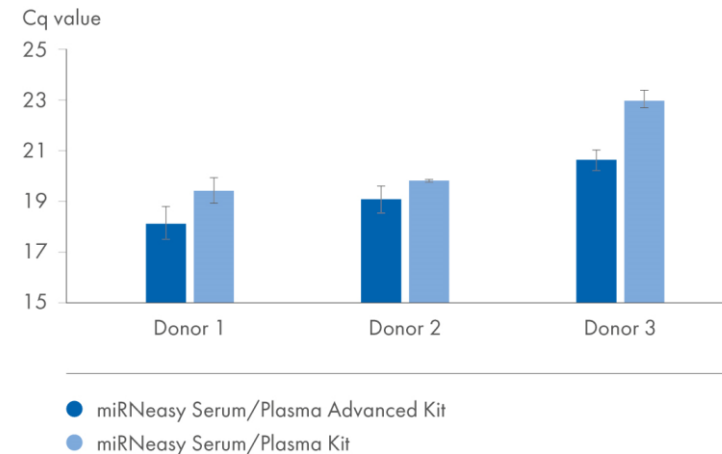


## Competitive yield and performance



The miRNeasy Serum/Plasma Advanced Kit shows comparable or better performance to kits from other suppliers.

## High recovery of miRNA



miRNA was isolated from 200  $\mu$ L plasma from 3 different samples using the miRNeasy Serum/Plasma Advanced Kit or the miRNeasy Serum/Plasma Kit

Both kits show good recovery of miR16



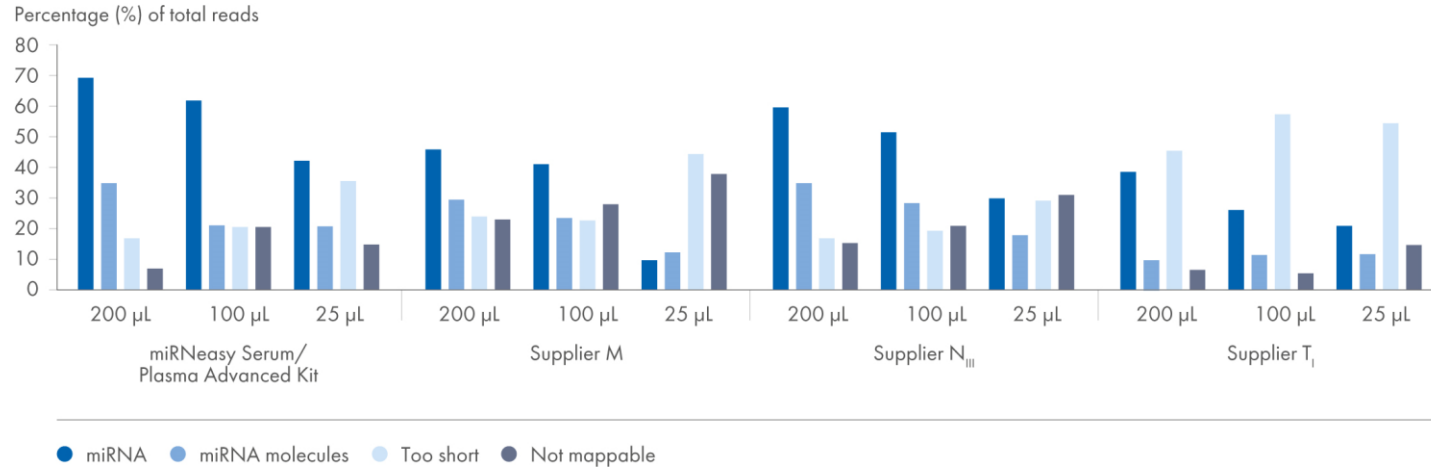
[Chryplewicz A, et al. Cancer cell autophagy, reprogrammed macrophages, and remodeled vasculature in glioblastoma triggers tumor immunity. \*Cancer Cell\*. 2022;40\(10\):1111–1127.e9.](#)

[Capizzi M, et al. Developmental defects in Huntington's disease show that axonal growth and microtubule reorganization require NUMA1. \*Neuron\*. 2022;110\(1\):36–50.e5.](#)

# miRNeasy Serum/Plasma Advanced for non-toxic miRNA isolation



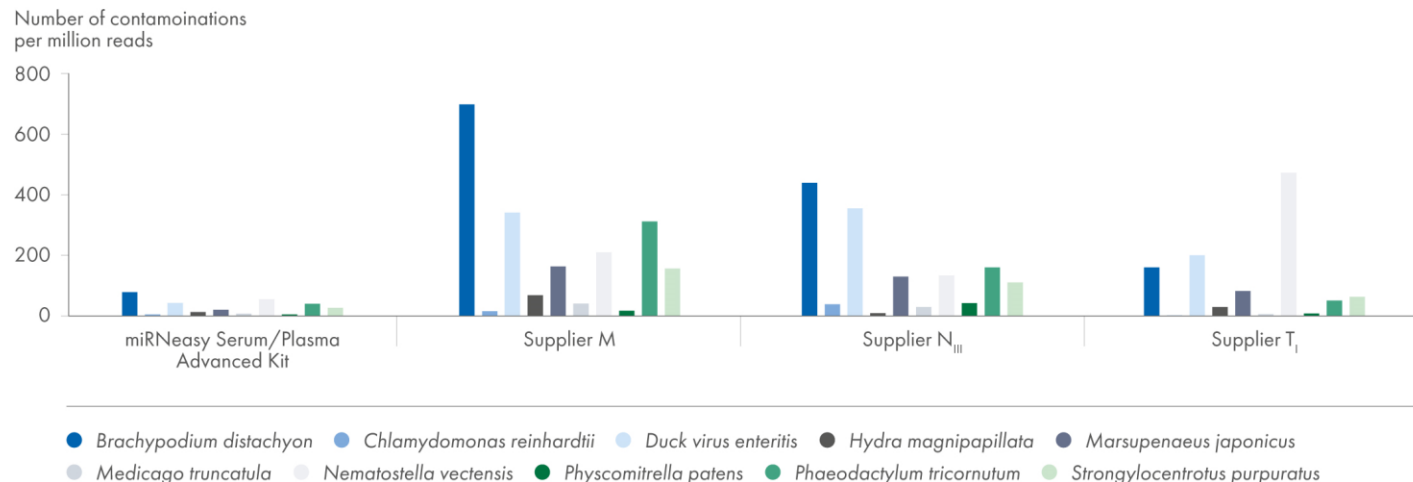
## Increase your miRNA reads



Compared to miRNA samples isolated with competitor kits the miRNeasy Serum/Plasma Advanced Kit showed:

- Lowest number of “unmappable” reads
- Lowest number of “too short reads”
- Highest number of “miRNA” reads

## Get better miRNA sequencing performance combined with lower apparent contamination



- UMI-collapsed number of potential contaminants using the different isolation kits
- Isolation with the miRNeasy Serum/Plasma Advanced Kit results in better miRNA sequencing performance combined with lower apparent contamination

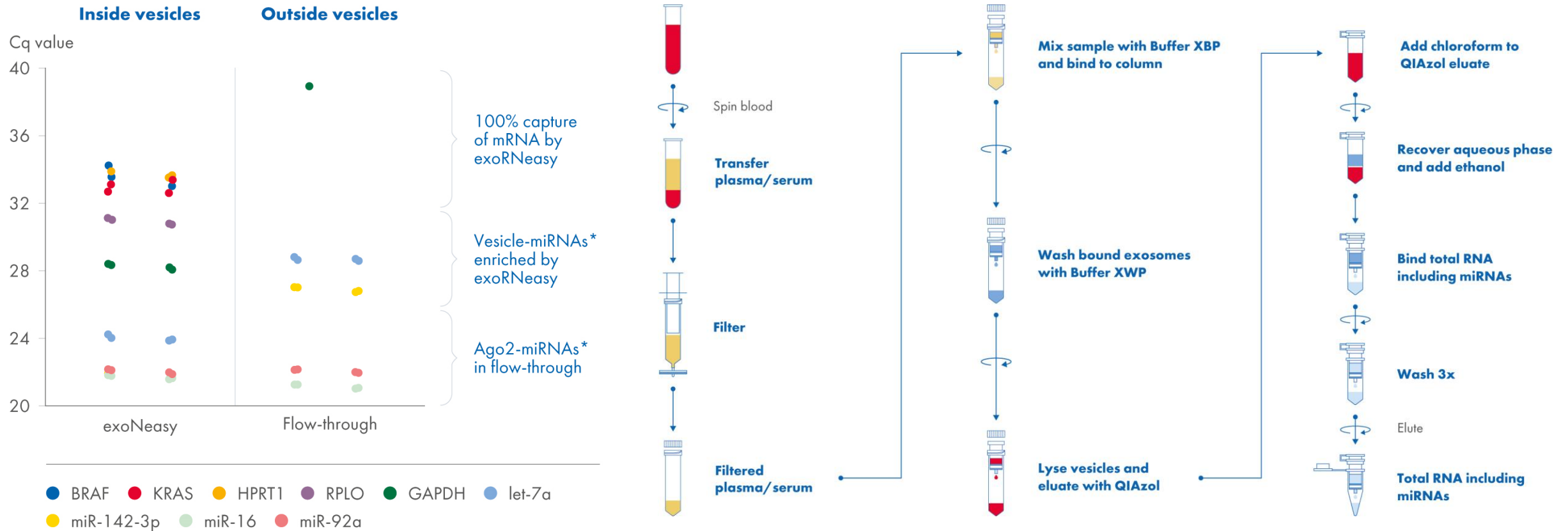
Data obtained through experiments conducted by QIAGEN R&D in Hilden, Germany.



# exoRNeasy Midi and Maxi Kits – isolate all mRNA and miRNA with a standardized workflow

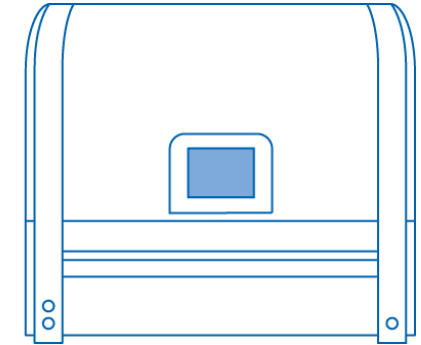
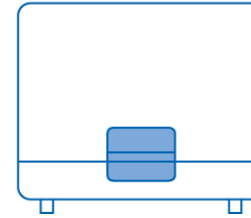
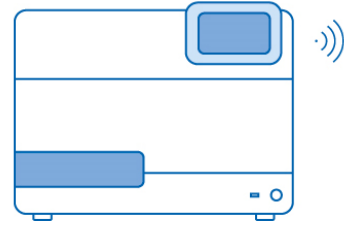
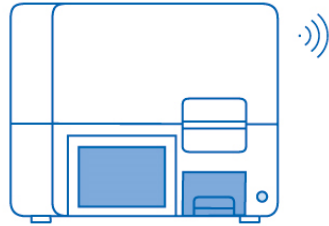


miRNA are present in vesicular fractions and non-vesicular fractions such as free Ago2 complexes



exoRNeasy captures all mRNA and vesicle-specific miRNA.

# Automated miRNA purification

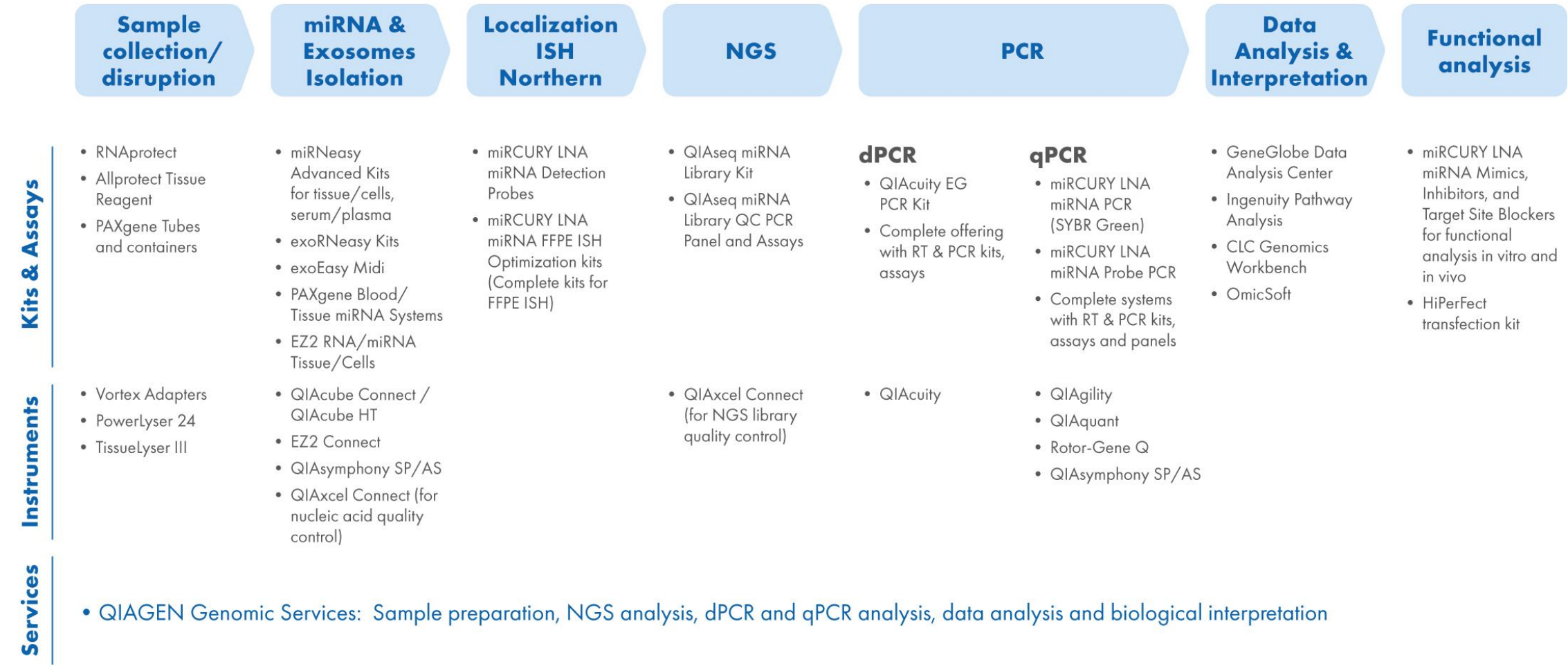


Instrument	QIAcube Connect	EZ2 Connect	QIAcube HT	QIASymphony
<b>Throughput</b>	Up to 12 samples	Up to 24 samples	Up to 96 samples	Up to 96 samples
<b>Kits</b>	Most RNA Single-Spin kits can be processed on the QIAcube Connect. For available protocols please <a href="#">check</a> here.	<a href="#">EZ2 RNA/miRNA Tissue/Cells (48)</a>	<a href="#">QIAcube HT RNA (5x 96)</a> , <a href="#">QIAzol Lysis Reagent (200 mL)</a>  <a href="#">miRNeasy 96 Advanced QIAcube HT (5x 96)</a>	<a href="#">QIASymphony RNA</a>  <a href="#">QIASymphony PAXgene Blood RNA (96)</a>
<b>Format</b>	Single-spin columns	Cartridge/magnetic beads	96-well plate	Cartridge/magnetic beads
<b>Elution volume</b>	30–100 µL	50 or 100 µL	110 µL	50, 100 or 200 µL
<b>Key strengths</b>	<ul style="list-style-type: none"> <li>Automation of well-proven and established spin-columns kits for many sample materials</li> <li>Guided setup and UV-light decontamination of work deck for highest lab safety</li> </ul>	<ul style="list-style-type: none"> <li>Prefilled and sealed cartridges to minimize the risk of contamination</li> <li>Intuitive and easy to use</li> </ul>	<ul style="list-style-type: none"> <li>Allows high-throughput preparation of cell-free miRNA as well as isolation of total RNA, including miRNA from cells and tissue</li> </ul>	<ul style="list-style-type: none"> <li>Prefilled and sealed cartridges to minimize the risk of contamination</li> <li>Full tracking of samples and reagents</li> </ul>

# QIAGEN miRNA workflow

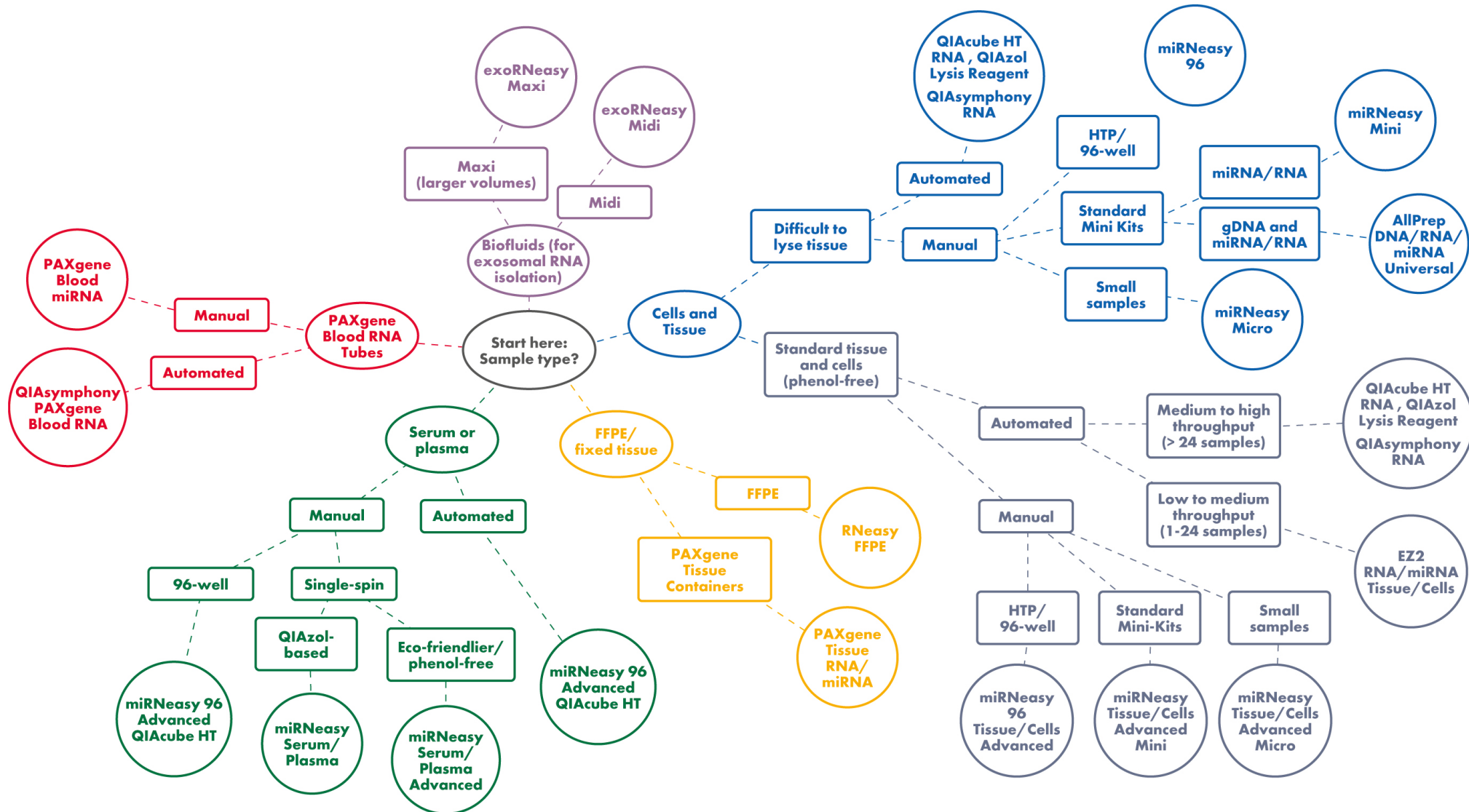


## miRNA Detection



miRNA extraction is the first out of many workflow steps leading to new insights.

# A quick guide to help you choose the right kit for your miRNA isolation experiment





# Thank you for your attention. Questions?

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