

QIAseq miRNA sequencing solutions

For miRNA, piRNA and small RNA expression analysis, as well as discovery of novel small RNAs

- QIAseq miRNA Library Kits dedicated for small RNA NGS library preparation
- QIAseq miRNA Library QC PCR Panel/Assay Kits and Spike-Ins for quality control of sample preparation and NGS performance



Overview

Workflow

Unique Molecular Indices

Superior % Mapped Reads

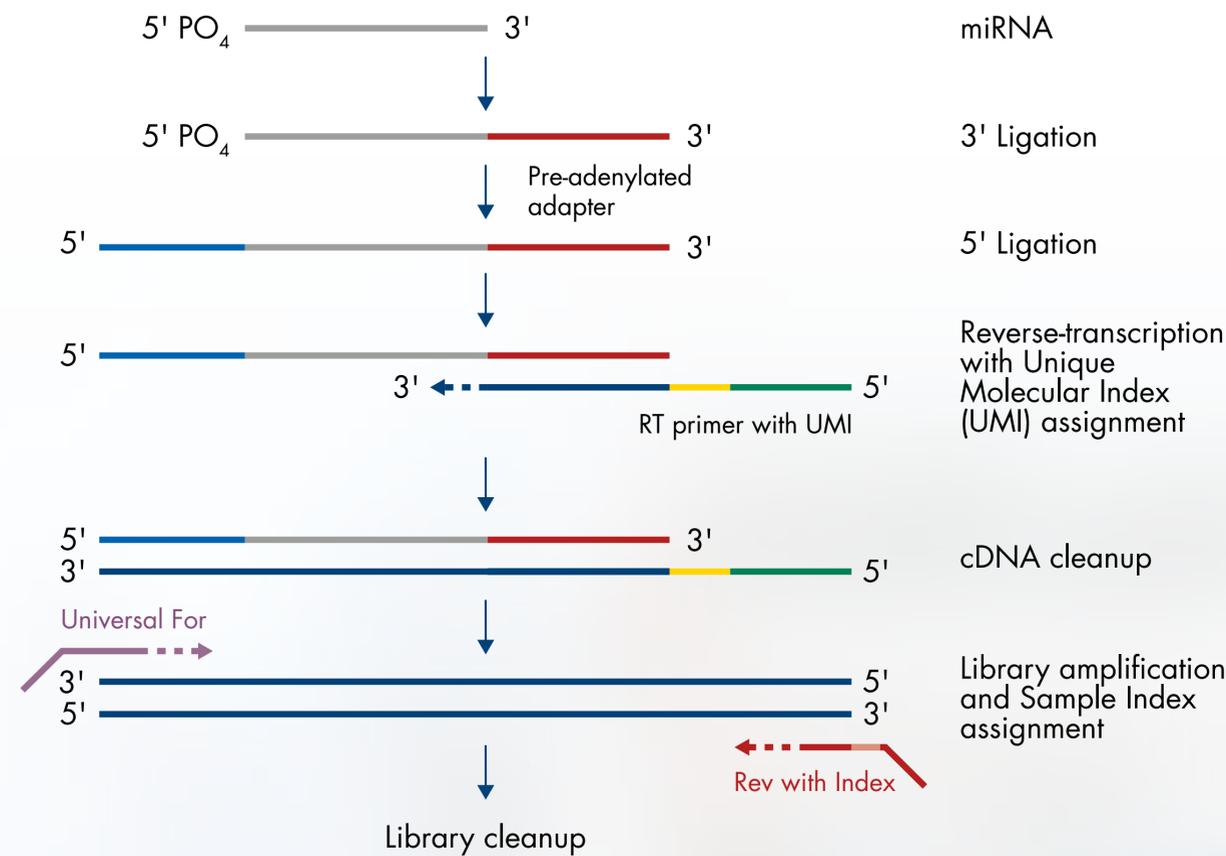
Spike-ins & QC Panels

Proven in Applications

Sample to Insight Solutions

Ordering Information

A convenient bead-based workflow – gel-free!



- Broad input range from 1–500 ng
- Suited for biofluids, low-input, FFPE and any tissue samples
- Fast 1-day workflow
- Blocks human Y4 small RNA from the NGS library



No gel purification, excision and elution needed, providing substantial time savings and minimizing sample loss



Protocol for Illumina NGS systems



Protocol for Thermo Fisher Scientific NGS systems

Accuracy in quantification with UMIs

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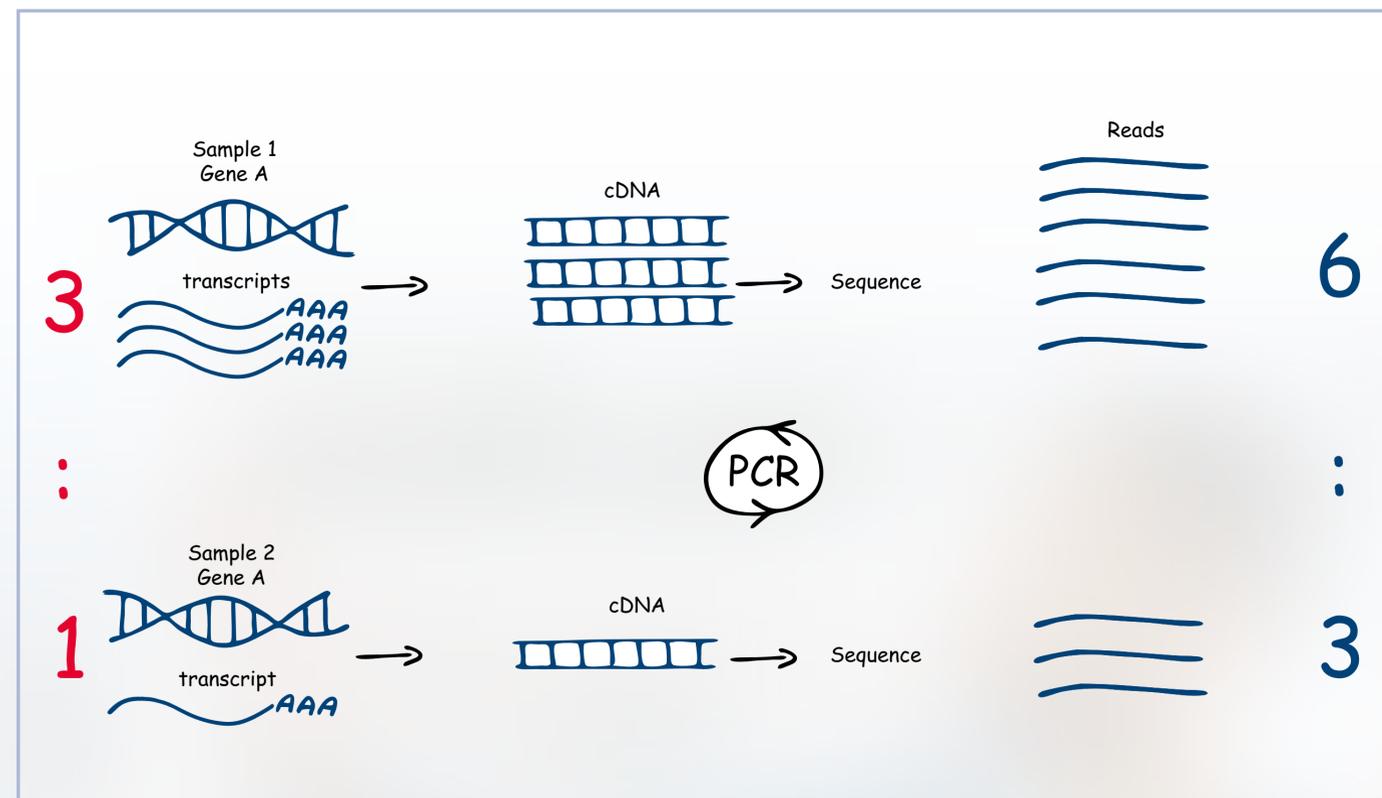
Spike-ins & QC Panels

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Sample to Insight Solutions

Ordering Information

Without UMIs
Incorrectly counts reads



Amplification during library preparation may result in bias

Integrated Unique Molecular Indices enable quantification of individual miRNA molecules, eliminating PCR and sequencing bias

Overview

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Unique Molecular Indices

Superior % Mapped Reads

Spike-ins & QC Panels

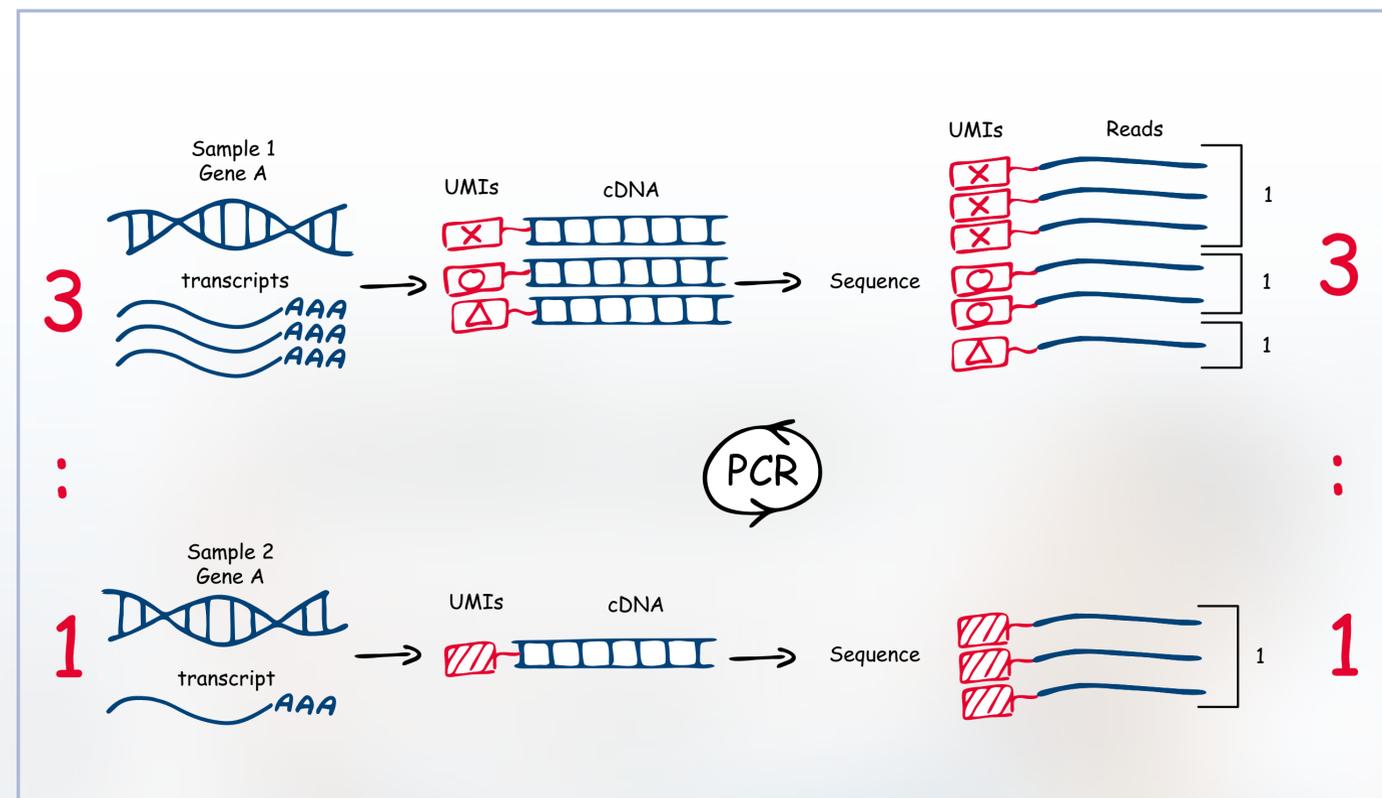
Proven in Applications

Sample to Insight Solutions

Ordering Information

Accuracy in quantification with UMIs

With UMIs
Correctly counts reads



Accuracy in quantification with Unique Molecular Indices (UMIs)

Integrated Unique Molecular Indices enable quantification of individual miRNA molecules, eliminating PCR and sequencing bias

Unrivalled performance

	NEXTflex (Bioo Scientific)	SMARTer (Clontech/Takara)	NEBNext (New England Biolabs)	QIAseq (QIAGEN)
Sequencing bias	✓	✓	✗	✓
Adapter dimers	✓	✓	✓	✓
% miRNA reads	✓	✗	✓	✓
hY RNA inhibition	✗	✗	✗	✓
Workflow convenience	✓	✓	✓	✓

Summary of the comparison for the sRNA-seq library preparation protocols. Green ticks indicate a satisfying performance and yellow ticks an average performance in the respective category. Red crosses either signify a performance below average, or in the case of YRNA inhibition, the option is not available.

Adapted from Coenen-Stass et al. (2018) Evaluation of methodologies for miRNA biomarker detection. RNA Biol, **15 (8)**, 1133.

QIAseq miRNA Library Kit outperforms other miRNA-seq kits on the market – evaluated as the leading solution for miRNA biomarker detection by NGS

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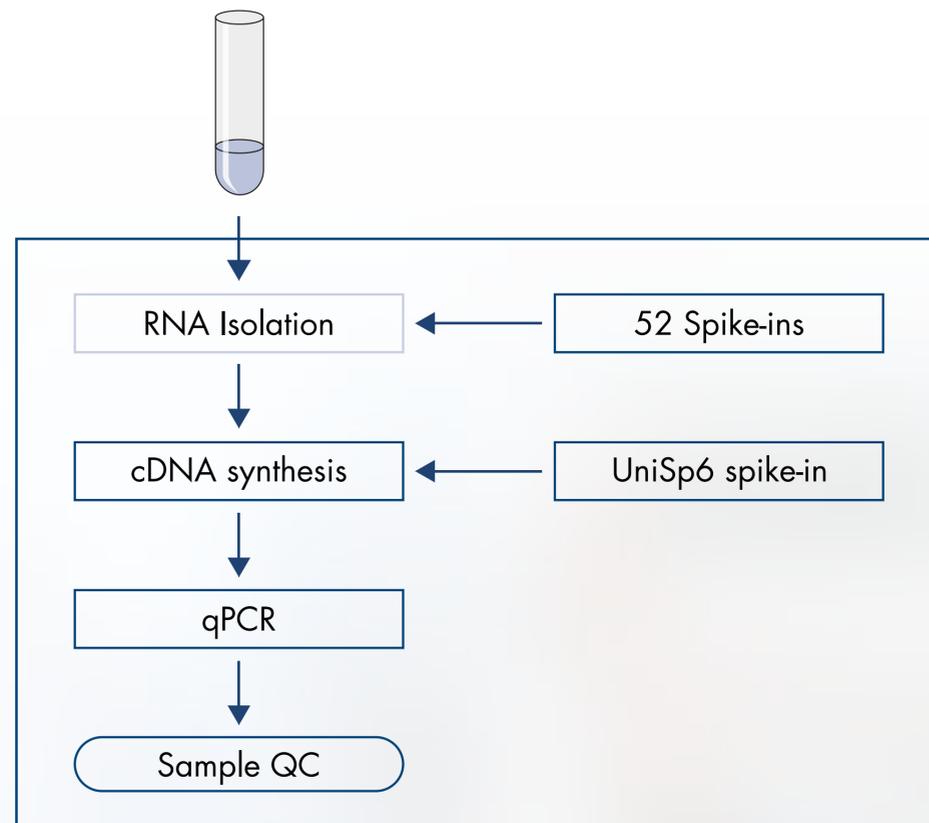
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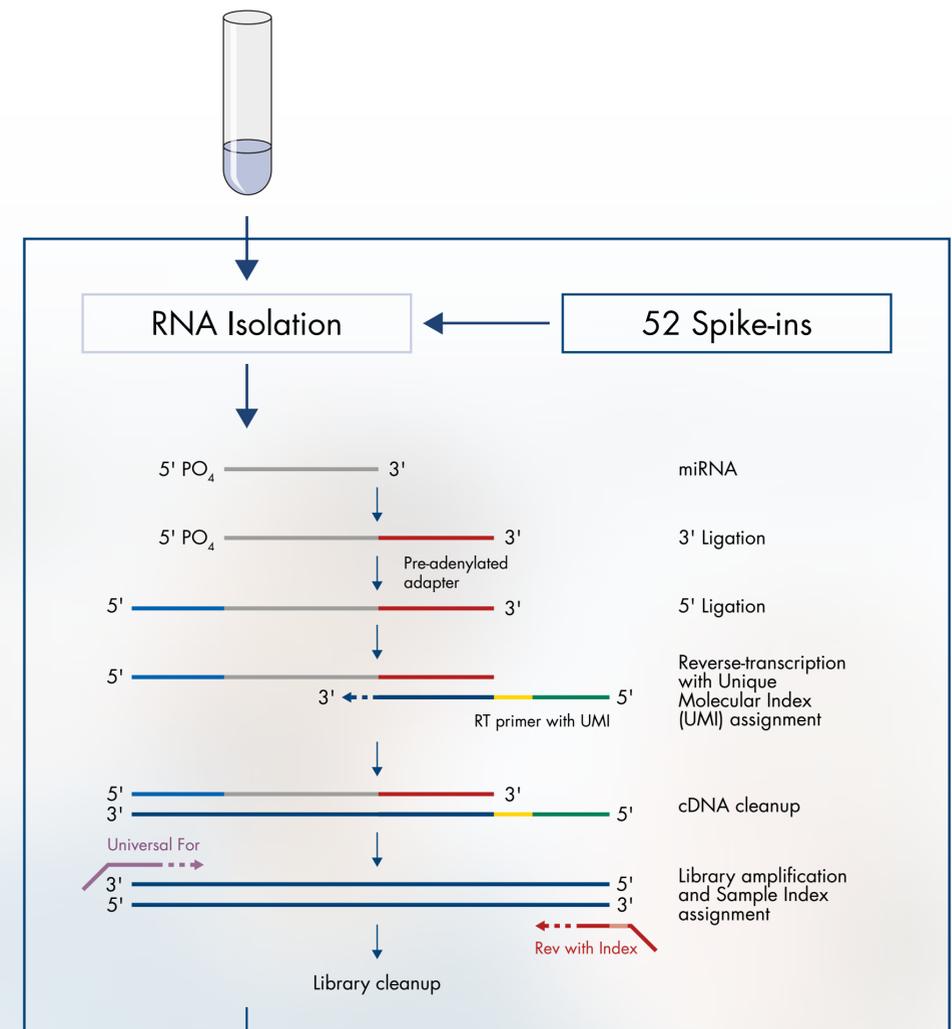
Unique spike-ins and qPCR-based miRNA quality control

qPCR assays & panels (complete with Spike-ins) for assessing sample quality by qPCR



Crucial for low-abundance RNA samples such as liquid biopsies and exosomes

Spike-ins for assessing NGS performance



Spike-ins analysis on GeneGlobe Data Analysis Center or CLC Genomics Workbench

Proven performance, peer-reviewed, accepted method

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Evaluation of methodologies for miRNA biomarker detection:

- Coenen-Stass et al. (2018) Evaluation of methodologies for miRNA biomarker detection. RNA Biol, **15(8)**, 1133.

Stem cell research:

- Mieczkowska et al. (2018) Immunophenotyping and transcriptional profiling of in vitro cultured human adipose tissue derived stem cells. Scientific Reports, **8**, 11339.

Cancer research:

- Decmann et al. (2018) MicroRNA expression profiling in Adrenal Myelolipoma. J Clin Endocrinol Metab. **103(9)**, 3522.

Cardiovascular research:

- Janaszak-Jasiecka et al. (2018) eNOS expression and NO release during hypoxia is inhibited by miR-200b in human endothelial cells. Angiogenesis. **21(4)**, 711.

Extracellular vesicles:

- Eichenberger et al. (2018) Hookworm secreted extracellular vesicles interact with host cells and prevent inducible colitis in mice. Front. Immunol. **9**, 850.

Cited in several high-profile studies in diverse applications as an effective methodology for small RNA-seq

Sample to Insight for optimized miRNA biomarker discovery

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miRNA sequencing for new biomarker discovery:

- QIAseq miRNA Library Kit
- QIAseq miRNA Library QC Spike-ins
- QIAseq miRNA Library QC PCR Panel and Assays

Efficient isolation of miRNA without compromising integrity:

- miRNeasy FFPE Kit, miRNeasy Micro and Mini Kits
- [miRNeasy Serum/Plasma Advanced Kit](#)

Our RNA experts do the work for you:

- Complete RNA sequencing service covering everything from initial consultation to advanced data analysis

Bioinformatics software that works for everyone:

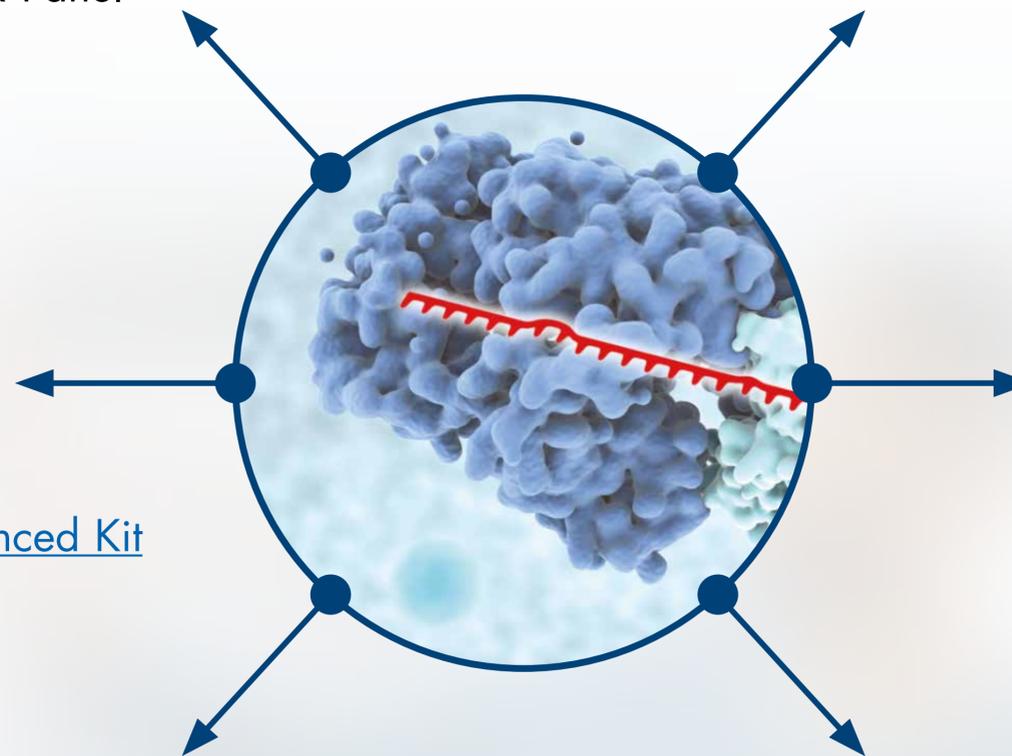
- CLC Genomics Workbench

Interpretation and visualization of your data within biological context:

- Ingenuity Pathway Analysis

Validation by qPCR with unmatched sensitivity and specificity:

- [miRCURY LNA PCR System](#)



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Product	Contents	Cat. no.
QIAseq miRNA Library Kits	Contains reagents and primers necessary for library generation of 12 or 96 samples	331502 (12 rxn) 331505 (96 rxn)
QIAseq miRNA NGS 96 Index IL (96)	Sequencing adapters, primers and indices compatible with Illumina platforms; 96 indices for 96 samples (pre-plated in 96-well plate for ease of use)	331565
QIAseq miRNA NGS 48 Index IL (96)	Sequencing adapters, primers and indices compatible with Illumina platforms; two 48 indices for 96 samples	331595
QIAseq miRNA NGS 12 Index IL (12)	Sequencing adapters, primers and indices compatible with Illumina platforms; 12 indices for 12 samples	331592
QIAseq miRNA NGS 48 Index TF (96)	Sequencing adapters, primers and indices compatible with Thermo Fisher platforms; two 48 indices for 96 samples	331585
QIAseq miRNA NGS 12 Index TF (12)	Sequencing adapters, primers and indices compatible with Thermo Fisher platforms; 12 indices for 12 samples	331582
QIAseq miRNA Library QC qPCR Panel Kit (48)	Includes 52 RNA Spike-ins, 10x RT enzyme mix, 5x reaction buffer, 10x RT primer mix, UniSp6 RNA Spike-in template, ready-to-use PCR panel in 96- or 384-well plate(s), nuclease-free water	331541
QIAseq miRNA Library QC qPCR Assay Kit	Includes 52 RNA Spike-ins, 10x RT Enzyme Mix, 5x Reaction Buffer, 10x RT Primer Mix, UniSP6 RNA Spike-in template and qPCR assays for 103a-3p, 191-5p, UniSp6, 451a, 23a-3p, 30c-5p, UniSp-100 and UniSp-101	331551
QIAseq miRNA Library QC Spike-ins	52 QIAseq miRNA Library QC Spike-ins, sufficient for up to 500 samples; nuclease-free water	331535

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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