

RT² miRNA PCR Arrays



Simultaneous Detection of Genome-Wide or Pathway-Focused miRNA using Real-Time PCR

miRNA Arrays

The RT² miRNA qPCR Arrays & Assays from SABiosciences are the state-of-the-art technology for detecting & analyzing microRNA. The patent-pending technologies dramatically improve the discrimination and specificity for closely related miRNA. The assays also distinguish mature miRNA from their precursors. More importantly, thanks to uniformly high PCR amplification efficiencies, the arrays simultaneously detect genome-wide miRNA with high sensitivity and specificity. Application-focused arrays are available for cancer as well as development & differentiation research.

● Specificity

Discrimination of miRNA with Single Mismatches

● Efficiency

Uniformly > 90% Amplification Efficiencies*

● Sensitivity & Dynamic Range

Use 50 - 400 ng small RNA (0.5-4 µg total RNA)

● Reproducibility

Technical Replicate Correlation Factors > 0.99

* PCR Amplification Efficiencies calculated using the DART-PCR Workbook (*Nucleic Acid Research* 2003; 31 (14): e73).

PERFORMANCE: DISCRIMINATION / SPECIFICITY

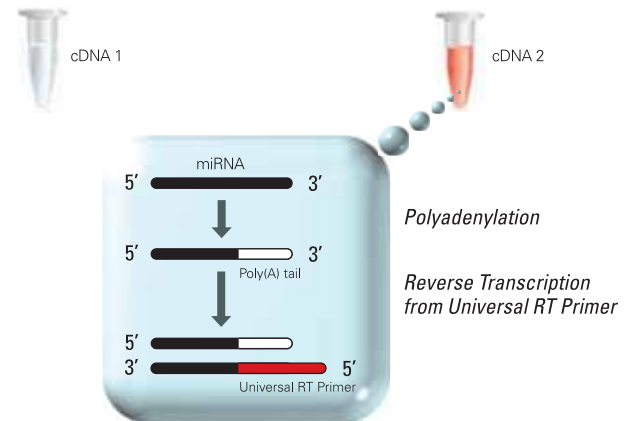
SYNTHETIC miRNA TEMPLATE	ASSAY PRIMER	RELATIVE DETECTION (% OF PERFECT MATCH)	miRNA TEMPLATE SEQUENCE
miR-10a	miR-10a	100 %	UACCCUGUAGA UCCGAAUUUGUG
	miR-10b	0.98 %	UACCCUGUAGA UCCGAAUUUGUG
miR-10b	miR-10b	100 %	UACCCUGUAGA ACCGAAUUUGUG
	miR-10a	0.01 %	UACCCUGUAGA ACCGAAUUUGUG
miR-99a	miR-99a	100 %	AACCCGUAGA UCCGAUCUUGUG
	miR-100	0.54 %	AACCCGUAGA UCCGAUCUUGUG
miR-100	miR-100	100 %	AACCCGUAGA UCCGAACUUGUG
	miR-99a	0.07 %	AACCCGUAGA UCCGAACUUGUG
miR-196a	miR-196a	100 %	UAGGUAGUUUC AUGUUGUUGGG
	miR-196b	0.20 %	UAGGUAGUUUC AUGUUGUUGGG
miR-196b	miR-196b	100 %	UAGGUAGUUUC CUGUUGUUGGG
	miR-196a	1.64 %	UAGGUAGUUUC CUGUUGUUGGG

Distinguishes miRNA family members with single nucleotide mismatches via a proprietary assay design.

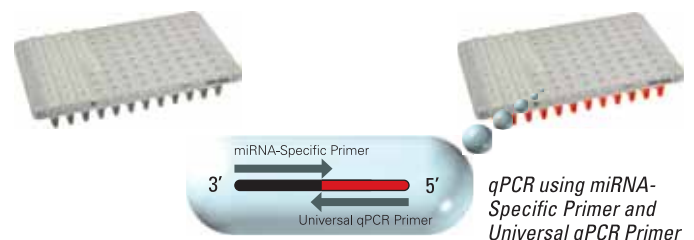
Relative detection as a percent of the perfect match ($100 \times 2^{-\Delta\Delta C_t}$) is calculated from the C_t values of target and off-target assays used to detect 10^5 copies of synthetic miRNA template.

How miRNA PCR ARRAYS WORK

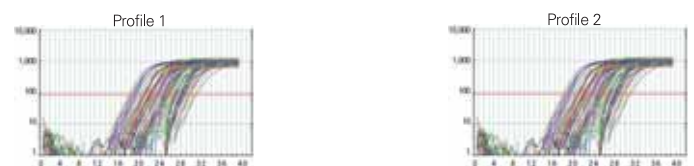
1. Convert miRNA to cDNA.



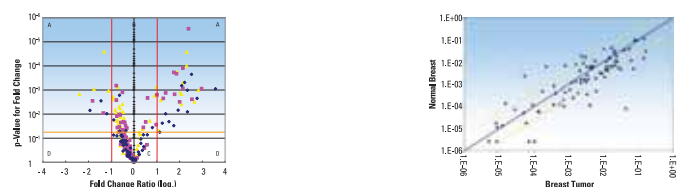
2. Add cDNA to RT² qPCR Master Mix. Aliquot Mixture Across PCR Array.



3. Run in Your Real-Time PCR Instrument.



4. Data Analysis.



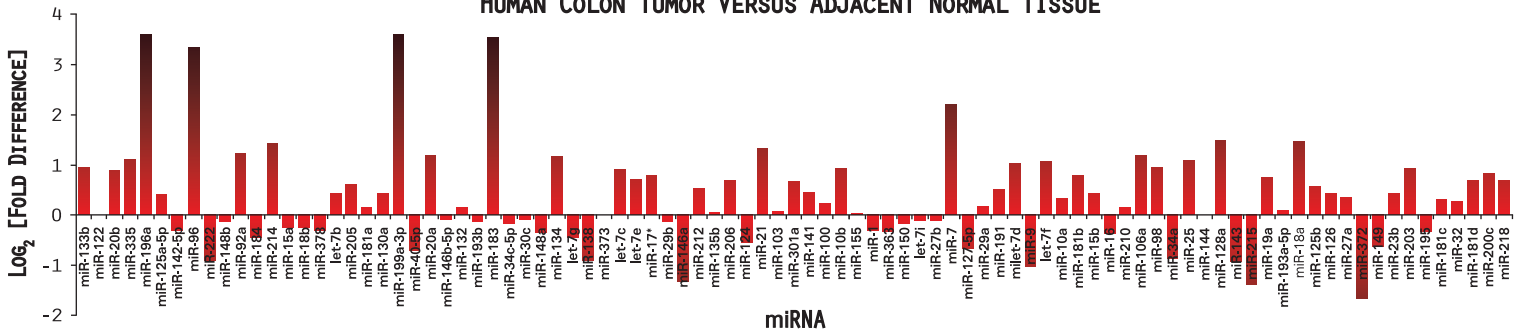
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APPLICATION EXAMPLE: CANCER RESEARCH

HUMAN COLON TUMOR VERSUS ADJACENT NORMAL TISSUE



RT² Human Cancer miRNA PCR Array identifies potential colon cancer biomarkers.

Small RNA isolated from human colon tumor and matched adjacent normal tissue (Biochain) was characterized with PCR Arrays containing assays specific for 88 cancer-related human miRNA sequences. Fold-differences are calculated from raw C_t values normalized to a panel of housekeeping small nuclear RNA. Most of the miRNA biomarkers appear to be up-regulated in colon cancer.

RT² PCR Array and Assay Specificity

The proprietary assay design and formulation:

- Preferentially reverse transcribes mature miRNA rather than pre-miRNA
- Distinguishes miRNA from small nuclear RNA, tRNA, and 5S rRNA
- Increases specificity and discrimination among miRNA sub-species and isoforms

RT² qPCR-Grade miRNA Isolation Kit

An optimized kit that enriches small RNA:

- Removes pri-miRNA and target mRNA transcripts from reverse transcription
- Increases the specificity and sensitivity of miRNA real-time PCR analysis
- Easy to use

RT² HUMAN miRNA PCR ARRAYS AVAILABLE:

miRNA PCR Arrays

Human Genome, 384-well	MAH-3100	2 Arrays (384-well)	\$ 799
Human Cancer	MAH-102	2 Arrays (96-well)	\$ 450
Human Cell Differentiation & Development	MAH-103	2 Arrays (96-well)	\$ 450
Human miFinder™	MAH-001	2 Arrays (96-well)	\$ 450

REQUIRED miRNA PCR Accessories

RT ² qPCR-Grade miRNA Isolation Kit	MA-01	12 Samples	\$ 149
RT ² miRNA First Strand Kit	MA-03	12 Samples	\$ 199
RT ² qPCR Master Mix w/ SYBR® Green / ROX	PA-012	2 Arrays	\$ 189
RT ² qPCR Master Mix w/ SYBR Green / Fluorescein	PA-011	2 Arrays	\$ 189
RT ² qPCR Master Mix w/ SYBR Green Only	PA-010	2 Arrays	\$ 189

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