

GeneChip® miRNA 3.0 Array

Affymetrix® miRNA 3.1 Array Strip

Affymetrix® miRNA 3.1 Array Plates

Comprehensive tool for understanding the regulation of coding and non-coding transcripts

Affymetrix' miRNA 3.0 and 3.1 arrays help bring you closer to biology with:

Comprehensive coverage – Designed to interrogate all mature miRNA sequences in miRBase Release 17

Streamlined analysis – Analyze human, mouse, rat, or every miRNA for all species using the same array

Rich information – Array results are complimented with host gene ID, miRNA target genes, and clustered miRNA

Low sample input – Requires as little as 130 ng total RNA

Introduction

Many diseases, including cancer, are frequently described as diseases of disordered gene expression. It is estimated that more than 30% of protein translation of coding genes are regulated by miRNA. There is also a large amount of growing evidence suggesting miRNA interacts with long non-coding RNA in the signaling networks that regulate alternative splicing events, which impacts cellular processes such as apoptosis, proliferation, and differentiation—all of which have shown to be causative elements in diseases such as cancer.

Measuring the changes in these critical nodes of regulation is extremely important for deciphering the biological context of differentially expressed genes. This new array design is a powerful tool for studying the role of small non-coding RNAs and their involvement in a broad spectrum of developmental and physiological mechanisms such as:

- Protein translation inhibition
- Alternative splicing regulation
- Ribosomal RNA processing
- mRNA degradation

Comprehensive and unique array content

Affymetrix' high-density array provides the most sensitive, accurate, and complete measurement of small non-coding RNA transcripts involved in gene regulation. These Affymetrix miRNA arrays are the only arrays that provide:

- 100% miRBase v17 coverage
- 153 organisms (19,724 probe sets)
- 3,524 human, mouse, and rat miRNA
- 2,216 human snoRNA, scaRNA
- 2,999 probe sets unique to human, mouse, and rat pre-miRNA hairpin sequences

Superior performance

GeneChip® miRNA 3.0 Array demonstrates superior performance:

- 0.95 reproducibility (inter- and intra-lot)
- >94% of transcripts detected at 1.0 amol from 130 ng of total RNA
- >3 logs of dynamic range
- 0.99 signal correlation for mature miRNA between GeneChip miRNA 3.0 and 2.0 arrays
- 0.98 fold change correlation for mature miRNA between GeneChip miRNA 3.0 and 2.0 arrays

The easiest and most affordable solution

Coupled with the simple and affordable Affymetrix® FlashTag™ Biotin HSR RNA Labeling Kit, Affymetrix® miRNA arrays offer easy target preparation (even from challenging samples such as FFPE) and are the most affordable solution available.

The 45-minute assay—from RNA sample to labeled target—does not involve complex enzymology (amplification) or purification steps that can reduce the yield or bias your results by introducing false positives or false negatives.

Simple data analysis

Data analysis of Affymetrix® miRNA arrays is simple. The CEL files generated by these arrays are compatible with Affymetrix® Expression Console™ Software (version 1.3.1 and higher) to enable simple data analysis. Affymetrix® miRNA arrays are designed to contain all miRNA in miRBase Release 17; however, we have provided the ability to filter your data using one of four analysis options. Prior to performing the analysis in Expression Console Software, the following four options are presented:

- All organisms
- Mouse only
- Human only
- Rat only

By selecting either the human, mouse, or rat only analysis options, only the probe sets for the selected organism(s) will be reported in the analysis output. After generating the signal summarization, you can perform differential expression analysis and visualize your results using Affymetrix® Transcriptome Analysis Console (TAC) Software. Both Expression Console Software and TAC Software can be downloaded for free from www.affymetrix.com.

Ordering information

Part number	Description	Details
902017	GeneChip® miRNA 3.0 Array	Contains 2 arrays
902018	GeneChip® miRNA 3.0 Array	Contains 6 arrays
902019	GeneChip® miRNA 3.0 Array	Contains 30 arrays
902151	Affymetrix® miRNA 3.1 Array Strip	Contains one 4-array strip
902283	Affymetrix® miRNA 3.1 Array Plate	Contains one 16-array plate
902285	Affymetrix® miRNA 3.1 Array Plate	Contains one 24-array plate
902287	Affymetrix® miRNA 3.1 Array Plate	Contains one 96-array plate

Part number	Description	Details
901910	Affymetrix® FlashTag™ Biotin HSR RNA Labeling Kit	Sufficient for 10 reactions
901911		Sufficient for 30 reactions
900720	GeneChip® Hybridization, Wash, and Stain Kit	Sufficient for 30 reactions
902276	GeneTitan® Hybridization, Wash, and Stain Kit for miRNA Array Plates	Sufficient for 96 reactions
902275	Gene Titan® Hybridization Module for miRNA Array Plates	Sufficient for 96 reactions
902134	GeneAtlas® Hybridization, Wash, and Stain Kit for miRNA Array Strips	Sufficient for 60 reactions
900454	GeneChip® Hybridization Control Kit	Sufficient for 30 reactions
900301	Control Oligo B2, 3nM ¹	Sufficient for 30 reactions

¹Included in the Hybridization Control Kit

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Products may be covered by one or more of the following patents: U.S. Patent Nos. 5,445,934; 5,744,305; 5,945,334; 6,140,044; 6,399,365; 6,420,169; 6,551,817; 6,733,977; 7,629,164; 7,790,389 and D430,024 and other U.S. or foreign patents. Products are manufactured and sold under license from OGT under 5,700,637 and 6,054,270.

Array content description	
miRBase	Release 17
snoRNAbase	Version 3
Organisms (including viruses)	153
Total mature miRNA probe sets	19,724
Probes/probe set for mature miRNA	9
Human mature miRNA probe sets	1,733
Mouse mature miRNA probe sets	1,111
Rat mature miRNA probe sets	680
Human snoRNA and scaRNA probe sets	2,216
Human pre-miRNA probe sets	1,658
Mouse pre-miRNA probe sets	855
Rat pre-miRNA probe sets	486

Specifications

Performance	
Reproducibility (inter- and intra-lot)	>0.95
Transcripts detected at 1.3 amol in 130 ng	85%
Dynamic range	>3 logs
Total RNA input	130–1,000 ng
Probe feature size	11 µm
Probe length	Up to 25-mer