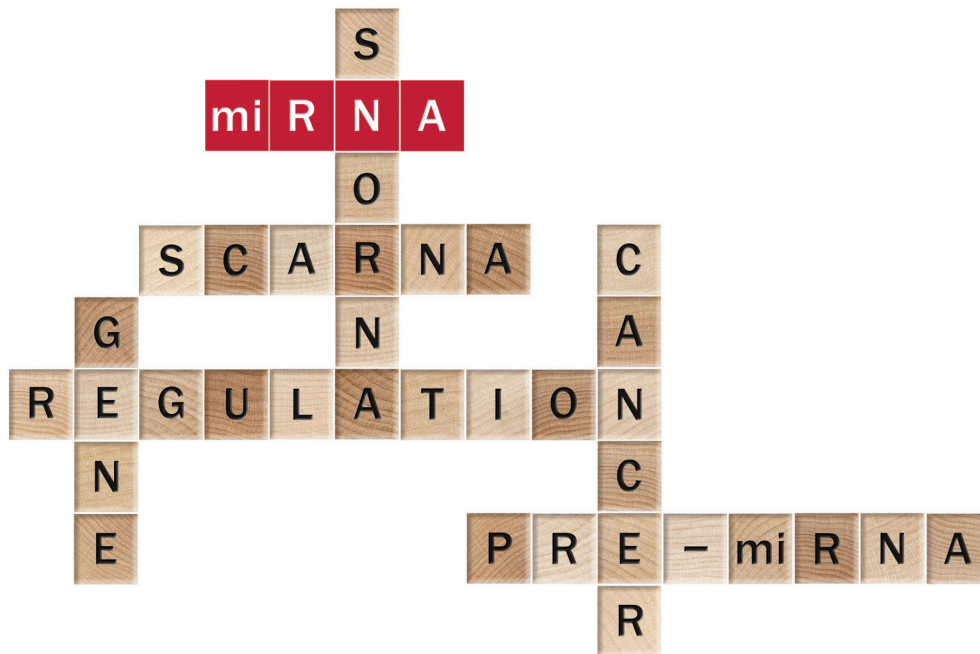


## GeneChip® miRNA 2.0 Array

Your gene expression experiment has given you the “what”—  
now discover the “why.”



### Benefits of the GeneChip® miRNA 2.0 Array:

- **Comprehensive content** – Provides complete coverage of miRBase V15, including snoRNA and scaRNA probes
- **Unique content** – Designed to independently interrogate pre-miRNA and mature miRNA in the same experiment
- **High sensitivity** – Detects 85 percent of miRNA transcripts at 1.0 amol
- **High reproducibility** – 0.95 reproducibility (inter- and intra-lot)
- **Easiest workflow** – 45-minute assay without pre-amplification or purification steps
- **Low sample input** – Requires as little as 100 ng total RNA
- **Affordable** – Meets the budget needs of every life science researcher

### Introduction

Since their discovery in 1993, small non-coding RNAs (microRNA, scaRNA, and snoRNA) have emerged as a major component in the regulatory circuitry that underlies the development and physiology of complex organisms.

As a result, it is becoming increasingly important to complement messenger RNA (mRNA) gene expression studies with miRNA analysis to understand the biological context of differentially expressed genes. These key functional gene products are estimated to regulate approximately 30 percent of all protein-coding genes.

These small-non-coding RNA molecules cover the broadest spectrum of developmental and physiological mechanisms in the cell, including:

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

## Unique array content

The GeneChip® miRNA 2.0 Array provides the most sensitive, accurate, and complete measurement of small non-coding RNA transcripts involved in gene regulation.



It is the only array with:

- 100 percent miRBase v15 coverage, all 131 organisms (15,644 probe sets)
- 2,334 snoRNAs and scaRNAs
- 2,202 probe sets unique to pre-miRNA hairpin sequences

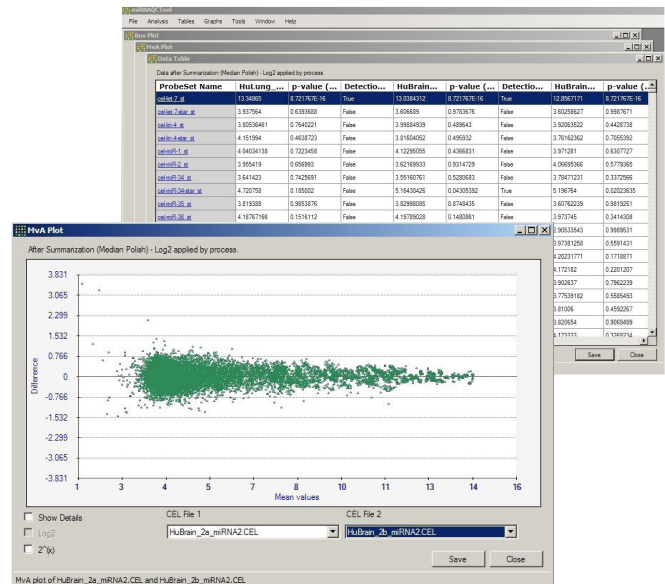
## The easiest and most affordable solution available

Coupled with the simple and affordable FlashTag™ Biotin HSR RNA Labeling Kit from Genisphere, the GeneChip miRNA 2.0 Array offers easy target preparation and the most affordable solution available.

The 45-minute assay 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.

## Data analysis

Data analysis with the GeneChip miRNA 2.0 Array is simple. You can use one of our GeneChip-compatible™ programs you already use for analyzing expression data today, or download the free Affymetrix miRNA QC Tool from [www.affymetrix.com](http://www.affymetrix.com).



## Specifications

|                                  |  |              |
|----------------------------------|--|--------------|
| Reproducibility                  | >0.95                                      | Within lot   |
|                                  | >0.95                                      | Between lots |
| Transcripts detected at 1.0 amol | 85%  |              |
| Dynamic range                    | >3 logs                                    |              |
| Total RNA input                  | 100 ng                                     |              |
| Feature size                     | 11 µm                                      |              |
| Probe length                     | 25-mer; less, if the miRNA is less than 25 |              |

## Array content

| Unique probe sets   | Number | Source  |
|---|--------|---|
| Mature miRNA probes from miRBase V15  | 15,644 | Content is derived from the Sanger miRBase miRNA ( <a href="http://microrna.sanger.ac.uk">http://microrna.sanger.ac.uk</a> ).   |
| Human, mouse, and rat hairpin pre-miRNA   | 2,202  | Content is derived from the Sanger miRBase miRNA ( <a href="http://microrna.sanger.ac.uk">http://microrna.sanger.ac.uk</a> ).   |
| Retrospective miRNA, scaRNA, and snoRNA probe sets from the previous-generation array | 107    | Retrospective probe sets include miRNA, snoRNA, and scaRNA RNA from the previous version of the array.  |
| snoRNA and scaRNA probes  | 2,334  | Probe sets targeting human snoRNAs and scaRNAs are derived from the snoRNABase ( <a href="http://www.snorna.biotoul.fr/coordinates.php">www.snorna.biotoul.fr/coordinates.php</a> ) and the Ensembl Archive ( <a href="http://www.ensembl.org/biomart/martview">www.ensembl.org/biomart/martview</a> ). |

## Organisms on the array

| Organism                         | No. of RNAs |
|----------------------------------|-------------|
| <i>Acyrtosiphon pisum</i>        | 10          |
| <i>Aedes aegypti</i>             | 126         |
| <i>Amphimedon queenslandica</i>  | 16          |
| <i>Anopheles gambiae</i>         | 65          |
| <i>Apis mellifera</i>            | 58          |
| <i>Aquilegia caerulea</i>        | 45          |
| <i>Arabidopsis thaliana</i>      | 224         |
| <i>Arachis hypogaea</i>          | 32          |
| <i>Ateles geoffroyi</i>          | 54          |
| BK polyomavirus                  | 2           |
| <i>Bombyx mori</i>               | 562         |
| <i>Bos taurus</i>                | 679         |
| Bovine herpesvirus               | 12          |
| <i>Brachypodium distachyon</i>   | 19          |
| <i>Branchiostoma floridae</i>    | 73          |
| <i>Brassica napus</i>            | 48          |
| <i>Brassica oleracea</i>         | 7           |
| <i>Brassica rapa</i>             | 23          |
| <i>Brugia malayi</i>             | 31          |
| <i>Caenorhabditis briggsae</i>   | 131         |
| <i>Caenorhabditis elegans</i>    | 233         |
| <i>Caenorhabditis remanei</i>    | 137         |
| <i>Canis familiaris</i>          | 291         |
| <i>Capitella teleta</i>          | 134         |
| <i>Carica papaya</i>             | 1           |
| <i>Cerebratulus lacteus</i>      | 2           |
| <i>Chlamydomonas reinhardtii</i> | 85          |
| <i>Ciona intestinalis</i>        | 514         |
| <i>Ciona savignyi</i>            | 25          |
| <i>Citrus clementine</i>         | 5           |
| <i>Citrus reticulata</i>         | 4           |
| <i>Citrus sinensis</i>           | 11          |
| <i>Citrus trifoliata</i>         | 6           |
| <i>Cricetulus griseus</i>        | 1           |
| <i>Culex quinquefasciatus</i>    | 93          |
| <i>Danio rerio</i>               | 248         |
| <i>Daphnia pulex</i>             | 44          |
| <i>Dictyostelium discoideum</i>  | 2           |
| <i>Drosophila ananassae</i>      | 75          |
| <i>Drosophila erecta</i>         | 78          |
| <i>Drosophila grimshawi</i>      | 72          |
| <i>Drosophila melanogaster</i>   | 186         |
| <i>Drosophila mojavensis</i>     | 71          |
| <i>Drosophila persimilis</i>     | 69          |
| <i>Drosophila pseudoobscura</i>  | 274         |
| <i>Drosophila sechellia</i>      | 76          |

| Organism                        | No. of RNAs |
|---------------------------------|-------------|
| <i>Drosophila simulans</i>      | 178         |
| <i>Drosophila virilis</i>       | 74          |
| <i>Drosophila willistoni</i>    | 72          |
| <i>Drosophila yakuba</i>        | 75          |
| Epstein-Barr virus              | 44          |
| <i>Equus caballus</i>           | 361         |
| <i>Fugu rubripes</i>            | 109         |
| <i>Gallus gallus</i>            | 544         |
| <i>Glycine max</i>              | 86          |
| <i>Glycine soja</i>             | 13          |
| <i>Gorilla gorilla</i>          | 81          |
| <i>Gossypium arboreum</i>       | 1           |
| <i>Gossypium herbacium</i>      | 1           |
| <i>Gossypium hirsutum</i>       | 36          |
| <i>Gossypium raimondii</i>      | 4           |
| <i>Haliothis rufescens</i>      | 5           |
| Herpes B virus                  | 3           |
| Herpes simplex virus            | 49          |
| Herpesvirus of Turkey           | 28          |
| <i>Homo sapiens (miRNA)</i>     | 1,105       |
| <i>Homo sapiens (pre-miRNA)</i> | 1,105       |
| <i>Homo sapiens (scaRNA)</i>    | 32          |
| <i>Homo sapiens (snoRNA)</i>    | 2,302       |
| Human cytomegalovirus           | 17          |
| Human immunodeficiency virus    | 4           |
| <i>Hydra magnipapillata</i>     | 20          |
| Infectious laryngotracheitis    | 10          |
| <i>Ixodes scapularis</i>        | 34          |
| JC polyomavirus                 | 2           |
| Kaposi sarcoma-associated virus | 25          |
| <i>Lagothrix lagotricha</i>     | 45          |
| <i>Lemur catta</i>              | 15          |
| <i>Locusta migratoria</i>       | 14          |
| <i>Lottia gigantea</i>          | 64          |
| <i>Lotus japonicas</i>          | 4           |
| <i>Macaca mulatta</i>           | 505         |
| <i>Macaca nemestrina</i>        | 71          |
| <i>Malus domestica</i>          | 2           |
| Mareks disease virus            | 62          |
| <i>Medicago truncatula</i>      | 383         |
| Merkel cells                    | 2           |
| <i>Monodelphis domestica</i>    | 146         |
| Mouse cytomegalovirus           | 29          |
| Mouse gammaherpesvirus          | 10          |
| <i>Mus musculus</i>             | 722         |
| <i>Mus musculus (pre-miRNA)</i> | 690         |

| Organism                             | No. of RNAs |
|--------------------------------------|-------------|
| <i>Nasonia vitripennis</i>           | 53          |
| <i>Nematostella vectensis</i>        | 78          |
| <i>Oikopleura dioica</i>             | 63          |
| <i>Ornithorhynchus anatinus</i>      | 532         |
| <i>Oryza sativa</i>                  | 496         |
| <i>Oryzias latipes</i>               | 4           |
| <i>Ovis aries</i>                    | 4           |
| <i>Pan paniscus</i>                  | 84          |
| <i>Pan troglodytes</i>               | 531         |
| <i>Phaseolus vulgaris</i>            | 10          |
| <i>Physcomitrella patens</i>         | 281         |
| <i>Pinus taeda</i>                   | 38          |
| <i>Pongo pygmaeus</i>                | 608         |
| <i>Populus euphratica</i>            | 8           |
| <i>Populus trichocarpa</i>           | 237         |
| <i>Pristionchus pacificus</i>        | 99          |
| <i>Pygathrix bieti</i>               | 9           |
| <i>Rattus norvegicus</i>             | 389         |
| <i>Rattus norvegicus (pre-miRNA)</i> | 389         |
| <i>Rhesus lymphocryptovirus</i>      | 48          |
| <i>Rhesus monkey</i>                 | 11          |
| <i>Ricinus communis</i>              | 63          |
| <i>Saccharum officinarum</i>         | 16          |
| <i>Saccoglossus kowalevskii</i>      | 45          |
| <i>Saguinus labiatus</i>             | 40          |
| <i>Schistosoma japonicum</i>         | 78          |
| <i>Schistosoma mansoni</i>           | 5           |
| <i>Schmidtea mediterranea</i>        | 257         |
| <i>Selaginella moellendorffii</i>    | 64          |
| <i>Simian virus</i>                  | 2           |
| <i>Solanum lycopersicum</i>          | 30          |
| <i>Sorghum bicolor</i>               | 148         |
| <i>Strongylocentrotus purpuratus</i> | 46          |
| <i>Sus scrofa</i>                    | 189         |
| <i>Symphalangus syndactylus</i>      | 10          |
| <i>Taeniopygia guttata</i>           | 212         |
| <i>Tetraodon nigroviridis</i>        | 109         |
| <i>Tribolium castaneum</i>           | 56          |
| <i>Triticum aestivum</i>             | 32          |
| <i>Vigna unguiculata</i>             | 2           |
| <i>Vitis vinifera</i>                | 138         |
| <i>Xenopus laevis</i>                | 22          |
| <i>Xenopus tropicalis</i>            | 169         |
| <i>Zea mays</i>                      | 319         |

## Instrument and software requirements

| Critical specifications     | Description   |
|-----------------------------|---|
| <b>Hybridization volume</b> | 100 µL  |
| <b>Instrumentation</b>      | GeneChip® Hybridization Oven 645, GeneChip® Fluidics Station 450, and GeneChip® Scanner 3000 7G |
| <b>Software</b>             | GeneChip® Command Console® Software (AGCC), miRNA QCTool  |
| <b>Library files</b>        | miRNA2_0  |
| <b>Fluidics script</b>      | FS450_0003  |

## Ordering information

| Part number     | Product  | Description                 |
|-----------------|--|-----------------------------|
| <b>Arrays</b>   |  |                             |
| 901753          | GeneChip® miRNA 2.0 Array  | 2 arrays                    |
| 901754          | GeneChip® miRNA 2.0 Array  | 6 arrays                    |
| 901755          | GeneChip® miRNA 2.0 Array  | 30 arrays                   |
| <b>Reagents</b> |  |                             |
| 900301          | Control Oligo B2, 3nM  | Sufficient for 30 reactions |
| 900720          | GeneChip® Hybridization, Wash, and Stain Kit                         | Sufficient for 30 reactions |
| HSR10FTA        | FlashTag™ Biotin HSR RNA Labeling Kit<br>(available from Genisphere) | Sufficient for 10 reactions |
| HSR30FTA        | FlashTag™ Biotin HSR RNA Labeling Kit<br>(available from Genisphere) | Sufficient for 30 reactions |

The GeneChip® miRNA 2.0 Array is covered by Affymetrix' limited warranty as set forth under the "Limited Warranty" section below. Affymetrix will provide no support for the array. Affymetrix will not support any assay protocol used by the customer with the array. The array is not functionally tested by Affymetrix, and Affymetrix provides no warranty regarding the functional performance of the array in any specific customer application.

Limited warranty. Affymetrix warrants to you (but not to any third party) that GeneChip® Arrays shall be free from physical defects. Affymetrix' sole and exclusive liability and your sole and exclusive remedy under the foregoing warranty, is to provide you with a replacement array provided if the following conditions are met: (i) you used the affected array prior to its expiration date and notify Affymetrix promptly after you become aware of the defect; (ii) you cooperate with Affymetrix in Affymetrix' investigation as to the cause of the alleged physical defect and provide any information required by Affymetrix; and (iii) Affymetrix shall make the final determination in good faith, as to whether: (a) any physical defect in fact exists; and (b) if so, whether such physical defect was caused by Affymetrix' manufacturing process, and not user error, improper storage or handling, or any other cause for which Affymetrix is not responsible.

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