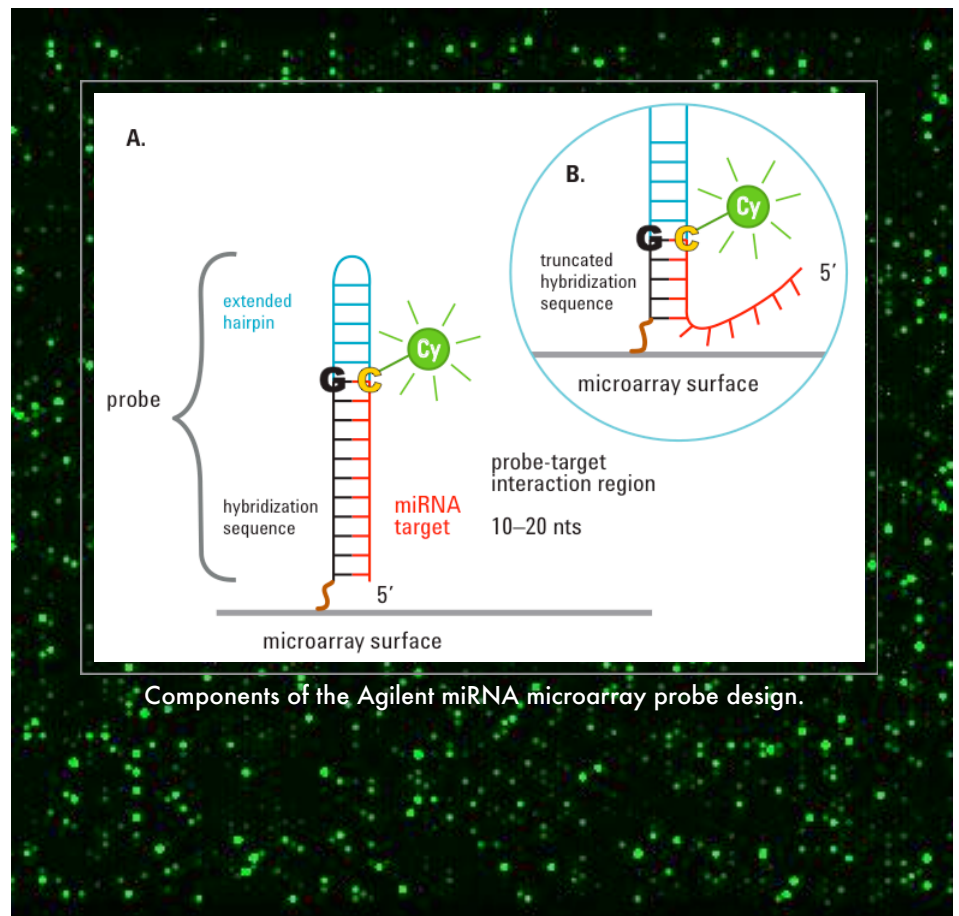


# miRNA

BY AGILENT

RUN BY THE  
UHN  
MICROARRAY  
CENTRE



## Exploring the expression of miRNA by microarray

### Small RNAs, Big Impact

The importance of microRNA (miRNA) in mammalian biological processes is only now starting to be fully comprehended. Each small (~21nt) miRNA can potentially control the ultimate "expression" of dozens or hundreds of genes post transcriptionally.

miRNAs have been implicated as regulators of developmental timing, neuronal differentiation, cell proliferation, apoptosis and fat metabolism.

While it has become clear that miRNAs seem to play an important role in many complex pathophysiological responses, the

unique properties of these molecules lead to challenges that require novel assay design in order to interrogate their expression.

The Agilent miRNA platform has been designed using a novel hairpin probe design ensuring that only the mature form of the miRNA is assayed, avoiding confounding results from the expression of pri-miRNA and pre-miRNA. The use of multiple probes per miRNA also ensures specificity for each miRNA profiled.

The unique labelling and capture method employed by the Agilent platform allows for very high sensitivity. Only 100 ng of total RNA are required in order to profile

the miRNAs in a sample, and no amplification is necessary. This represents an even greater level of sensitivity than a standard mRNA profiling array can offer.

Based on Agilent's proprietary SurePrint technology, the 8-up microarray design allows for a rapid and cost effective means to profile miRNA expression.

### Did you know?

The UHN Microarray Centre is an Agilent Certified miRNA Array Service Provider.

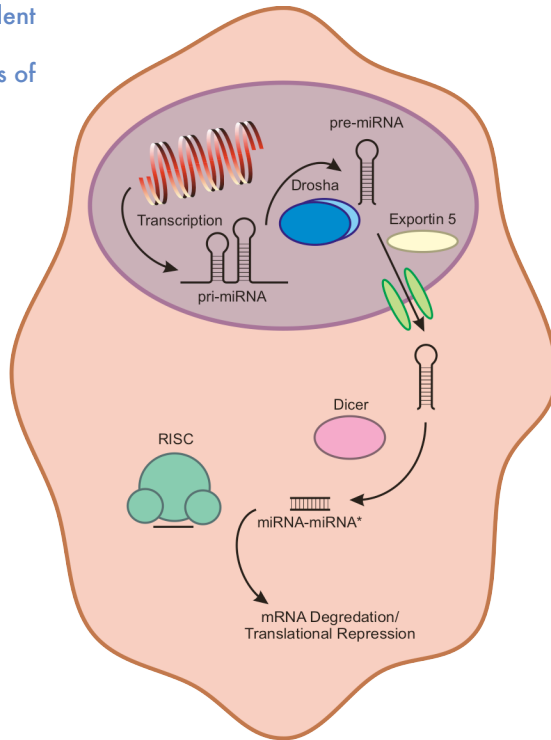
### Agilent miRNA Array Service Quick Facts

Arrays format:	8 x 15K
Replicates features per miRNA:	20-40
Total Number of Probes:	~15,000
miRNA species profiled:	Mature only
Slide format:	25 mm x 75 mm
Label:	Cy3 (one colour)
RNA required:	100 ng total RNA

Human miRNA:	723 human and 76 human viral miRNAs
Mouse miRNA:	567 mouse miRNAs and 10 mouse gamma herpes virus
Rat miRNA:	350 rat miRNAs

Please contact the UHN Microarray Centre for further information.

The canonical miRNA pathway. The Agilent miRNA platform measures the levels of the mature miRNA product only.



## The UHN Microarray Centre: A Service Partner You Can Trust

The UHN Microarray Centre has undergone an extensive certification process by Agilent for all of our Agilent service offerings. In September of 2007, the UHN Microarray Centre became the first laboratory in Canada to be certified for the provision of miRNA array services.

### More Than Just the Arrays

Agilent's Certification process ensures that the UHN Microarray Centre will provide high quality microarray results to our customers and partners, however, this is only one part of the process. The UHN Microarray Centre is here to help all

of our customers from the very beginning. Did you know that experimental design for a microarray experiment is critical in order to ensure that the questions you want to ask can actually be answered? The process involves so many variables, that statistical analysis requires careful planning from the very beginning. Not all experiments can be conducted in a single day, and careful planning of which samples to prepare and process and in which order will ensure the greatest impact of your investigation. Allow our experienced team to compliment your expertise and determine an optimal experimental design.

## Frequently Asked Questions:

1. What is miRNA and why profile it's expression?

In mammals, miRNA is thought to act as a post-transcriptional regulator of gene expression. miRNA (found in plants and animals) has been implicated in the regulation of developmental timing, cell proliferations, apoptosis and metabolism. miRNA also appears to play an important role in viral infection and cancer.

2. Why choose the Agilent platform?

Agilent has developed a microarray-based application for studying microRNAs (miRNAs) that combines a unique miRNA direct labelling method with an innovative probe design. Its unique probe design allows confident detection of both low-abundance and highly homologous miRNAs.

3. How much RNA do I need?

The Agilent miRNA platform uses total RNA as a starting point (Qiagen's miRNeasy Kit or Ambion's mirVana™ Kit). Only 100 ng of total RNA are needed to run an Agilent miRNA array.

4. What is the sequence source for the Agilent miRNA array?

The current miRNA arrays from Agilent are designed using v10.1 of the Sanger miRBase database.

## Contact Us

Tel: 1-416-581-4623

Toll: 1-877-294-4410 (USA/Canada)

[general@microarrays.ca](mailto:general@microarrays.ca)

[www.microarrays.ca](http://www.microarrays.ca)