

MicroRNA Experimental Overview

As a unique class of small RNA molecules, miRNAs require special tools for accurate and sensitive analysis. Ambion scientists have developed a portfolio of products that provide a complete solution to accelerate identification and characterization of this gene class. These tools will help you uncover the relationship between mRNA and protein expression, potentially leading to a new segment of targets for diagnostics and therapeutics. For assistance with miRNA experimental design, contact technical support at techserv@ambion.com or visit www.ambion.com/miRNA.

Isolation and Enrichment

Products:

- mirVana™ miRNA Isolation Kit
- mirVana™ PARIS™ Kit
- RecoverAll™ Total Nucleic Acid Isolation Kit
- FirstChoice® Total RNA
- flashPAGE™ Fractionator System

Product	Major Advantage	Cat. #
Almost all other commercially available RNA isolation kits neglect small nucleic acids. The mirVana™ miRNA isolation products are optimized to isolate all RNA species, including small RNA like miRNA		
mirVana™ miRNA Isolation Kit	Fast, easy isolation of small RNA from cultured cells and most tissues (including tissues with high levels of ribonucleases)	1560
mirVana™ PARIS™ Kit	Fast, easy isolation of small RNA and protein from cultured cells and many tissues	1556
RecoverAll™ Total Nucleic Acid Isolation Kit	Rapid isolation of DNA and RNA (including miRNA) from formalin-fixed, paraffin-embedded tissue	1975
FirstChoice™ Total RNA	Purchase total RNA containing miRNA fraction and avoid RNA isolation all together	*
Separate and enrich mature microRNA from the precursor molecules.		
flashPAGE™ Fractionator System	Fastest and easiest PAGE separation of very small nucleic acids (10 to 40 nt)	13100

* See www.ambion.com/prod/rna

Global miRNA Expression

Products:

- mirVana™ miRNA Labeling Kit
- mirVana™ miRNA Probe Set
- miRNA Expression Profiling Array

Evaluation of the global expression of miRNAs provides key opportunities to identify regulation points for many different biological processes.

Product	Major Advantage	Cat. #
Ultrasensitive microarray profiling of all known human, mouse, and rat miRNAs.		
mirVana™ miRNA Labeling Kit	Efficient and robust system for universal labeling of miRNA	1562
mirVana™ miRNA Probe Set	Highly specific microRNA probes for accurate microarray profiling	1564V1
mirVana™ miRNA Bioarrays	The most comprehensive probe panel to currently known human, mouse, and rat miRNAs	1566V1

Specific miRNA Expression

Products:

- mirVana™ miRNA Detection Kit
- mirVana™ Probe and Marker Kit
- mirVana™ Probe Construction Kit

Ambion's detection products provide highly accurate analysis of specific miRNAs, which is critical for the verification of data from microarray profiling or in-depth analysis of a small number of specific miRNAs.

Product	Major Advantage	Cat. #
Detailed analysis and confirmation of specific microRNAs		
mirVana™ miRNA Detection Kit	Ultrasensitive, solution hybridization detection of individual miRNAs (100–500 times more sensitive than Northern analysis)	1552
Generating miRNA probes for use with mirVana™ miRNA Detection Kit and Northern analysis		
mirVana™ miRNA Probe and Marker Kit	Easy, 5' end labeling	1554
mirVana™ miRNA Probe Construction Kit	Sensitive in vitro transcription (IVT) of microRNA probes (either radiolabeled or nonisotopically labeled)	1550

Functional Analysis

Products:

- Pre-miR™ miRNA Precursor Molecules
- Anti-miR™ miRNA Inhibitors
- pMIR-REPORT™ miRNA Expression Reporter Vector

MicroRNA functional analysis can be performed with protocols that are similar to standard genes. Up-regulation of the miRNAs can be conducted to identify gain-of-function phenotypes; down-regulation or inhibition can be conducted to identify loss-of-function phenotypes. The combination of up- and down-regulation can be used to identify genes that are regulated by specific miRNAs as well as to identify cellular processes that are affected by specific miRNAs.

Product	Major Advantage	Cat. #
Pre-miR™ miRNA Precursor Molecules	Synthetic miRNA molecules for up-regulation of miRNA activity	*
Anti-miR™ miRNA Inhibitors	Synthetic miRNA inhibitors that reduce miRNA activity	*
pMIR-REPORT™ miRNA Expression Reporter Vector	Accurate, quantitative miRNA reporter vector to monitor miRNA activity	5795

* Search and order online at www.ambion.com/miRNA