



**COMPLETELY  
BETTER  
GENE EXPRESSION  
SOLUTIONS**

The Measure of Confidence



**Agilent Technologies**

**FASTER, BETTER ANSWERS**

# Completely Better Gene Expression

By providing a complete portfolio of integrated gene expression workflow solutions, Agilent gives you the power and the flexibility to do the science you need to do, the way you want to do it.

## **AGILENT GENE EXPRESSION MICROARRAY PLATFORM**

- Fully customizable content for maximum flexibility in experimental design
- Dynamic range of 6 orders of magnitude for accurate measurement of expression
- Most up to date content including options for lincRNA, miRNA and exon array designs

## **AGILENT qPCR SOLUTIONS**

- Prep-to-analysis solutions—fully integrated reagent kits, instruments, and software
- Best sensitivity, specificity, and speed

## **SURESELECT RNA TARGET ENRICHMENT**

- More complete characterization of RNA transcripts than ever before
- Deeper coverage enabling detection of rare events

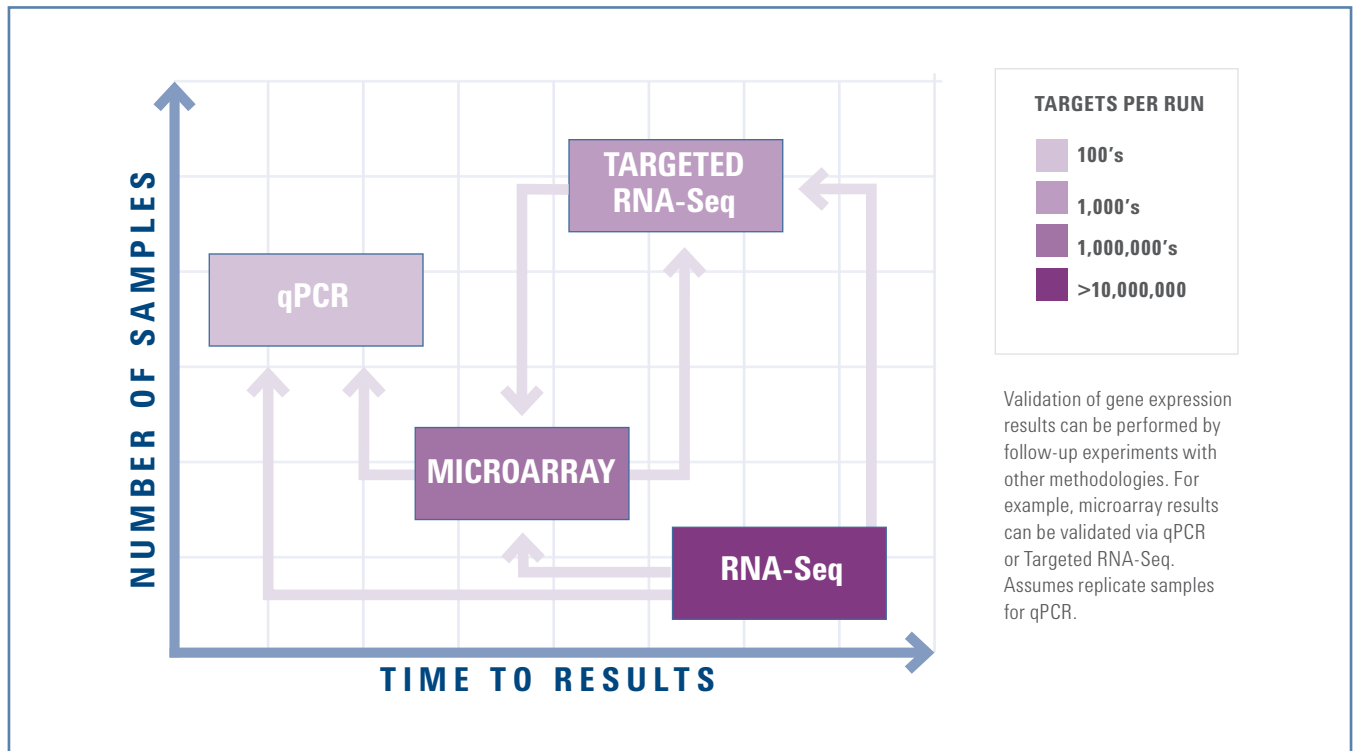


### **AGILENT'S COMPLETELY BETTER GENE EXPRESSION PORTFOLIO**

- Agilent SureScan System and SurePrint G3 Microarrays
- Agilent Mx3005P QPCR System and Brilliant Reagents
- Agilent SureSelect RNA Target Enrichment Kits
- Agilent GeneSpring Analysis Software
- Agilent 2100 Bioanalyzer



## MULTIPLE TECHNIQUES FOR GENE EXPRESSION STUDIES



## EASILY CUSTOMIZED CONTENT

# Agilent eArray: Powerful online design application enables experimental flexibility

- Easily create custom content for microarrays and targeted RNA-Seq libraries
- Choose from our optimized probes or design your own content
- Collaborate with colleagues by securely sharing design information online

[www.agilent.com/genomics/earray](http://www.agilent.com/genomics/earray)



## UNMATCHED SENSITIVITY AND SPECIFICITY

# Agilent Gene Expression Microarray Platform

### BETTER CONTENT

- Most up-to-date array content available
- Simultaneously measure gene- and exon-level RNA expression

### BETTER FLEXIBILITY

- Customize designs using public databases or your own sequence information
- Multiple array formats for efficient sample use

### BETTER SENSITIVITY

- 6 logs dynamic range for highly accurate expression profiling
- Input amounts as low as 10ng for best use of precious samples

[www.agilent.com/genomics/geneexpression](http://www.agilent.com/genomics/geneexpression)



## MICROARRAY WORKFLOW



#### EXTRACTION

- Total RNA Isolation Kit
- Plant RNA Isolation Kit
- Absolutely RNA Purification Kits including miRNA, FFPE

#### PREPARATION

- Quick Amp Labeling Kits
- Low Input Quick Amp Labeling Kits
- Low Input Quick Amp WT Labeling Kits
- miRNA Labeling Kits

#### DETECTION AND QUANTITATION

- SurePrint G3 Microarrays
  - Gene Expression (includes lincRNA)
  - Exon
  - miRNA
- Agilent SureScan Microarray Scanner
- Feature Extraction Software

#### DATA ANALYSIS

- GeneSpring GX Software

#### VALIDATION

- qPCR (Page 5)
- RNA Target Enrichment (Page 6)



## PROVEN REPRODUCIBILITY

# Agilent qPCR Solutions

### BETTER SENSITIVITY

- Powerful optical system provides linear detection over ten orders of magnitude
- Brilliant III's engineered *Taq*-mutant delivers sensitive detection under standard and fast cycling conditions

### BETTER SPECIFICITY

- Proprietary hot start technology reduces primer-dimer formation for enhanced specificity

### BETTER SPEED

- Novel hot start technology reduces activation times
- Rapid nucleotide incorporation with *Taq*-mutant shortens run times to less than 40 minutes



[www.agilent.com/genomics/qpcr](http://www.agilent.com/genomics/qpcr)

## qPCR WORKFLOW



#### SAMPLE EXTRACTION AND PREPARATION

- Total RNA Isolation Kit
- Plant RNA Isolation Kit
- Absolutely Purification Kits including miRNA, FFPE and mRNA

#### DETECTION AND QUANTITATION

- AffinityScript Multiple Temperature Reverse Transcriptase
- Brilliant III Ultra-Fast QPCR and RT-QPCR Master Mixes
- Agilent Mx3005P QPCR System

#### DATA ANALYSIS

- MxPro QPCR Software

#### VALIDATION

- RNA Target Enrichment (Page 6)



Agilent Mx3005P QPCR system

# SureSelect RNA Target Enrichment

RNA Enrichment is a multifaceted tool for studying thousands of transcripts with exceptionally high sequencing coverage. More than ever before, SureSelect RNA Target Enrichment allows a cost-effective means to study relevant subsets of the transcriptome, providing insight at multiple levels.

## BETTER COVERAGE

- Precise measurement of gene expression levels
- Discovery of more splice variants and fusion genes
- Detection of allelic-specific expression and rare genes

## SURESELECT RNA TARGET ENRICHMENT KITS:

- SureSelect RNA Capture Custom Kits: Design custom kits targeting regions from <200Kb to 6.8Mb
- SureSelect RNA Capture Human Kinome Catalog Kits: Capture >500 known kinases and kinase-related genes

[www.agilent.com/genomics/rnacap](http://www.agilent.com/genomics/rnacap)



*More peer-reviewed publications than all other target enrichment solutions combined*

## SEE WHAT RNA ENRICHMENT REVEALS!

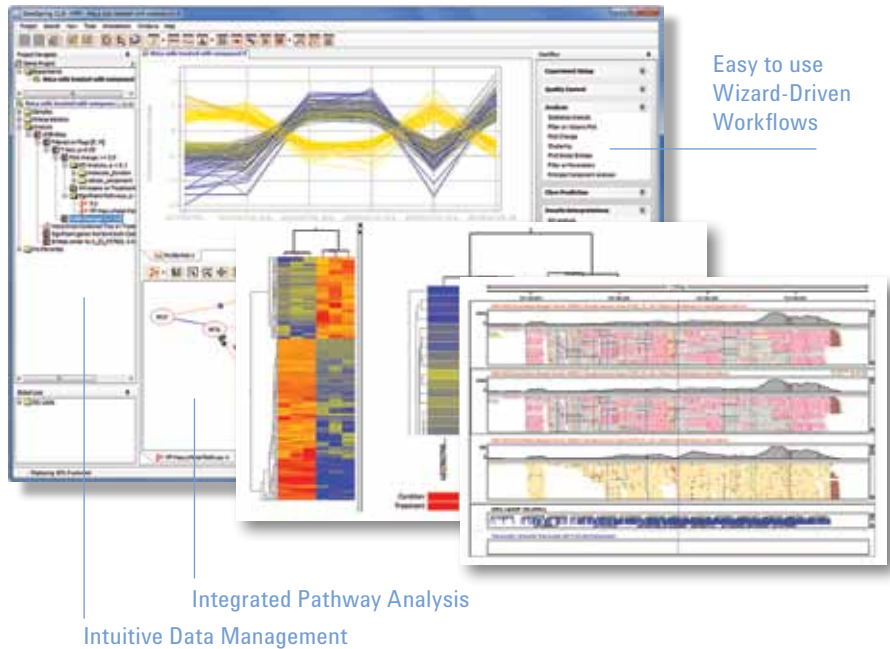
	WITH RNA Target Enrichment	WITHOUT RNA Target Enrichment
Novel Variants	16	4
Gene Fusions	5	2
Splice Junctions	4720	2958
Alternatively Spliced Genes	177	52
Average Coverage	606X	14.4X*

\* Levin, Joshua Z. et al. Targeted next-generation sequencing of a cancer transcriptome enhances detection of sequence variants and novel fusion transcripts. *Genome Biology* 2009, 10:115

## ONE ANALYSIS SOLUTION FOR ALL GENE EXPRESSION STRATEGIES

# Agilent GeneSpring Analysis Software

- The industry's most trusted expression software, GeneSpring gives you powerful, easy-to-use statistical tools for microarray, RNA sequencing, and qPCR data.
- Fast visualization and analysis allows you to quickly and reliably identify targets of interest that are both statistically and biologically meaningful.



[www.agilent.com/genomics/genespring](http://www.agilent.com/genomics/genespring)

**Integrated Gene Expression Analysis.** Using GeneSpring, heterogeneous expression data from 3' IVT microarrays, miRNA arrays, exon splicing arrays, RNA sequencing, and qPCR can be combined into one project.

## THE INDUSTRY STANDARD FOR RNA QUALITY CONTROL

# Agilent 2100 Bioanalyzer

- The Agilent 2100 Bioanalyzer, with its RNA kit portfolio, ensures highest RNA sample integrity in microarray or NGS experiments.
- Cited in more than 10,000 papers, the system has proven itself as the industry standard for ensuring sample quality, enabling quality results.

[www.agilent.com/genomics/bioanalyzer](http://www.agilent.com/genomics/bioanalyzer)

Find out more about Agilent Automation Solutions, including the Agilent Bravo Liquid Handler, at [www.agilent.com/genomics/automation](http://www.agilent.com/genomics/automation)



## NOW IT'S EASY TO BUY ONLINE!

Visit [www.agilent.com/genomics/register](http://www.agilent.com/genomics/register) to get started.

- Streamline ordering by saving billing and shipping information
- Buy with purchase order or credit card
- Take advantage of web-only promotions
- View order status and history

## LEARN MORE ABOUT THE SCIENCE!

See and hear from Agilent Scientists and your peers in the scientific community.

Visit [www.agilent.com/genomics/eseminar](http://www.agilent.com/genomics/eseminar)

## For more information

### Learn more about

#### Agilent Gene Expression Solutions at:

[www.agilent.com/genomics/geneexpression](http://www.agilent.com/genomics/geneexpression)

#### Find an Agilent customer center in your country:

[www.agilent.com/chem/contactus](http://www.agilent.com/chem/contactus)

### U.S. and Canada

1-800-227-9770

[agilent\\_inquiries@agilent.com](mailto:agilent_inquiries@agilent.com)

### Europe

[info\\_agilent@agilent.com](mailto:info_agilent@agilent.com)

### Asia Pacific

[inquiry\\_lsca@agilent.com](mailto:inquiry_lsca@agilent.com)

Research use only. Information, descriptions, and specifications in this publication are subject to change without notice. Agilent Technologies shall not be liable for errors contained herein or for incidental or consequential damages in connection with the furnishing, performance, or use of this material.

Agilent SureSelect employs a method licensed from The Broad Institute at Harvard and MIT. Agilent Products are for Research Use Only. Not for use in diagnostic procedures. Information, descriptions and specifications in this publication are subject to change without notice.

© Agilent Technologies, Inc. 2011  
Printed in USA August 15, 2011  
5990-8155EN



**Agilent Technologies**