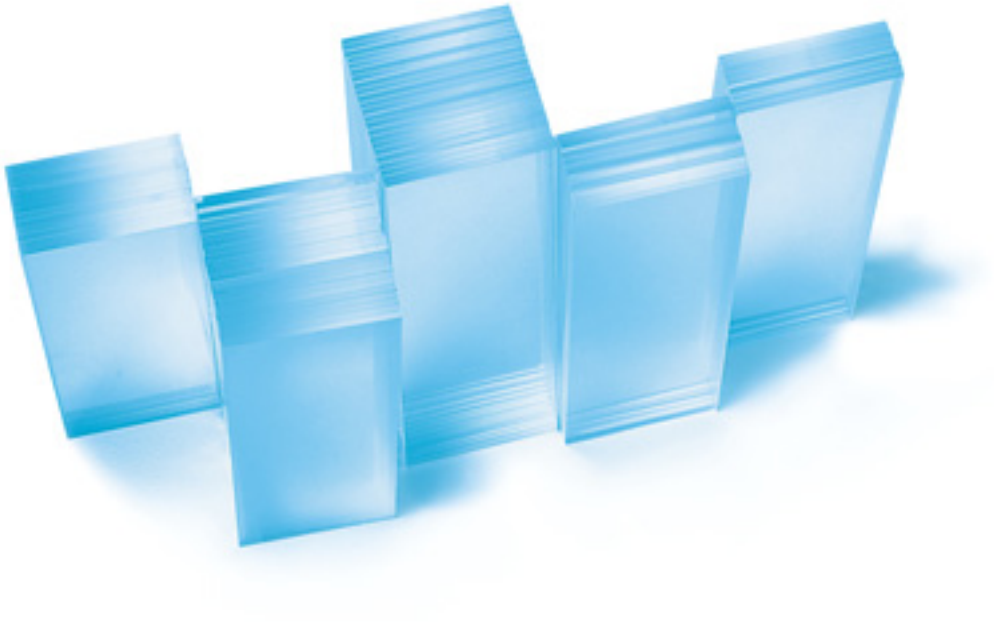
Open to Differences



Gene Expression
on the Agilent DNA Microarray Platform

Agilent Technologies

Where Are You Taking Your Gene Expression Research?

New perspectives on gene expression analysis are uncovering the intricacies of biological systems. What are you searching for? What tools do you need to get there?

At the inception of microarray expression analysis,

genomic coverage was a critical component in mining the genome for new insights. As expression analysis evolved, ever-greater density was pursued at the expense of sensitivity and probe specificity. This pursuit has often compromised the accuracy and reproducibility of experimental results. As you follow new avenues of gene expression research, you need a platform that doesn't force a trade-off between density, sensitivity, and flexibility. A platform that gives you results you can trust, regardless of the number of features on the array.

In today's genomics laboratory,

the analysis of challenging samples and the identification of low-abundance transcripts raise the bar for sensitivity and dynamic range on your microarray platform. Currently, huge repositories of Formalin-Fixed Paraffin Embedded (FFPE) samples are not being analyzed due to severely degraded RNA. Whole blood specimens also present a distinct challenge; these samples require higher levels of sensitivity and resolution than available in most commercial platforms. To open your lab to these new challenges, you need a platform that allows you to expand your experimental options, without exorbitant expense or performance concessions.

To explore the transcriptome without compromise, you need a microarray platform that empowers you to go where biology takes you.

ARE YOU TRYING TO ELUCIDATE COMPLEX BIOLOGICAL PATHWAYS ASSOCIATED WITH CHANGES IN GENE EXPRESSION? PLATFORM PROVIDE YOU WITH THE ADVANTAGES OF COMPATIBILITY WITH ONE- OR TWO-COLOR ANALYSIS? ARE

Open Up to Limitless Gene Expression Analysis

The Agilent Gene Expression microarray gives you the flexibility to design the experiment you need, without compromising accuracy and sensitivity.

Focused on sensitivity. Agilent's microarrays provide superior sensitivity, giving you the resolution to chart a clear path from data to decisions. Our 60-mer oligonucleotide probes are synthesized directly on the array, resulting in high-purity, high-fidelity probes that give you orders of magnitude better signal-to-noise ratios than other microarrays. Coupled with our extended dynamic range, you can detect subtle yet significant biological changes with confidence.

Engineered for flexibility. Powered by Agilent's SurePrint inkjet technology, our array manufacturing process synthesizes oligonucleotides to your exact specifications, enabling total control over array content with no compromise in cost or data quality. Combined with eArray, our online array design tool, you now have the capability to completely customize your microarray content and move from idea to experiment within days.

Optimized for scalability. Whether performing a focused expression study across the entire genome or scanning for differences in a subset of genes across hundreds or thousands of samples, Agilent's multiplexed arrays let you optimize your experimental design. Our multiplexed arrays have multiple arrays on a single slide, making expression studies of any scale feasible and affordable.

Designed for integration. Our microarrays sit at the center of an integrated platform. From sample preparation to data analysis, the Agilent DNA Microarray Platform provides the dynamic research tools you need to implement an integrated experimental workflow. Additionally, Agilent's GeneSpring Analysis Platform opens new doors, enabling analysis, comparisons, and visualization of data from multiple applications.

Agilent's Gene Expression Microarrays: Results you can trust.

DO YOU IDENTIFY CHANGES IN TRANSCRIPTION TO DIAGNOSE GENETICALLY-LINKED DISEASES? CAN YOUR CURRENT
YOU TRYING TO MEASURE EXPRESSION CHANGES TO DEVELOP SUITABLE DIAGNOSIS STRATEGIES AND THERAPIES FOR

Discover Uncompromised Sensitivity

Select optimized probes to accurately target low-abundance transcripts. Detect subtle yet significant biological changes. Analyze complex samples for expanded biological insights.

Delving into the intricacies of a biological system requires examination of a myriad of subtle and minute changes. To gain a clearer understanding of processes such as apoptosis, differential responses to chemotherapeutic agents, and regulatory points of complex signaling pathways, you need the ability to visualize low-abundance transcripts and their influence on biological systems.

Accurate and Comprehensive Coverage

- Improve performance with high-quality 60-mer probes designed to accurately measure genes and transcripts across the genome.

Compatibility with Complex Samples

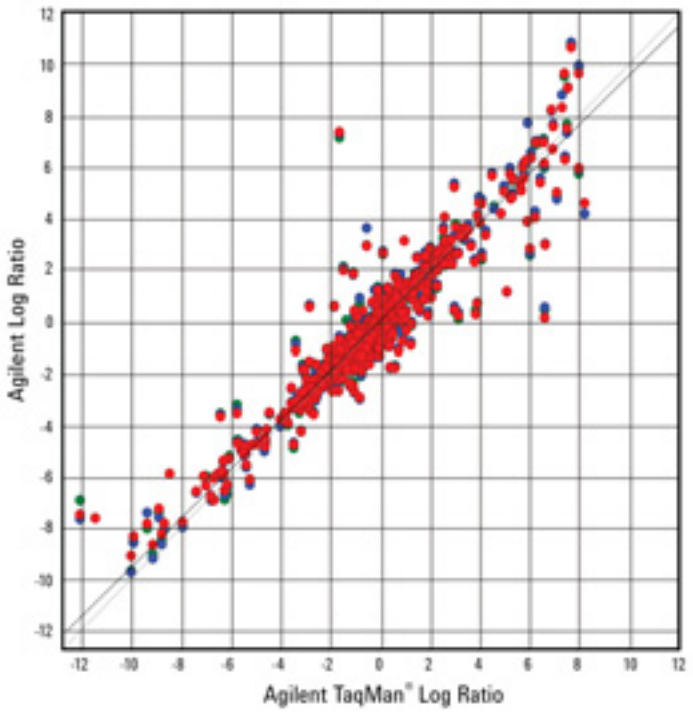
- Quality control, amplification, and labeling protocols designed to ensure reproducible results from a wide variety of sample types.

Robust System Performance

- Take advantage of superior sensitivity and a linear dynamic range that spans more than four orders of magnitude.

Excellent Reproducibility

- Accurately resolve small changes in gene expression using an optimized workflow that can detect less than two-fold changes in gene expression.



The Agilent microarray platform demonstrates high concordance with the TaqMan® assay

Accurate detection of differential expression is measured by concordance (slope or compression effect) and correlation (tightness of scatter) to an orthogonal gold standard method. The accuracy of Agilent's Gene Expression microarray is exhibited by a cross-platform comparison of Whole Human Genome 4 x 44K $\log_2$ (B/A) ratio data with TaqMan® data from the Microarray Quality Control (MAQC) study.*

*MAQC Consortium. The MicroArray Quality Control (MAQC) project shows inter- and intraplatform reproducibility of gene expression measurements. (2006) *Nat. Biotechnol.* **24**(9):1151–1161. View online at http://www.nature.com/nbt/journal/v24/n9/full/nbt1239.html

ARE YOU TRYING TO ELUCIDATE COMPLEX BIOLOGICAL PATHWAYS ASSOCIATED WITH CHANGES IN GENE EXPRESSION
DISEASE? DO YOU USE GENE EXPRESSION ANALYSIS TO IDENTIFY THE INFLUENCE OF TOXIC AGENTS ON CELLULAR ME

Customize Your Expression Tools and Optimize Your Results

Choose from a wide catalog of microarrays with the most refined probes for each gene. Focus on genes of interest with custom arrays. Create your own arrays containing any gene and any sequence.

Agilent provides you with experimental design flexibility, accompanied by technical consultation, to help you find the array that answers your specific biological questions.

One- or Two-Color Options for Targeted Analysis

- Dual-mode technology provides the flexibility to choose the optimum detection method for your research needs. Use one-color analysis for powerful, high-throughput sample scanning or two-color analysis for quantitative results when performing experiments using a near reference sample.

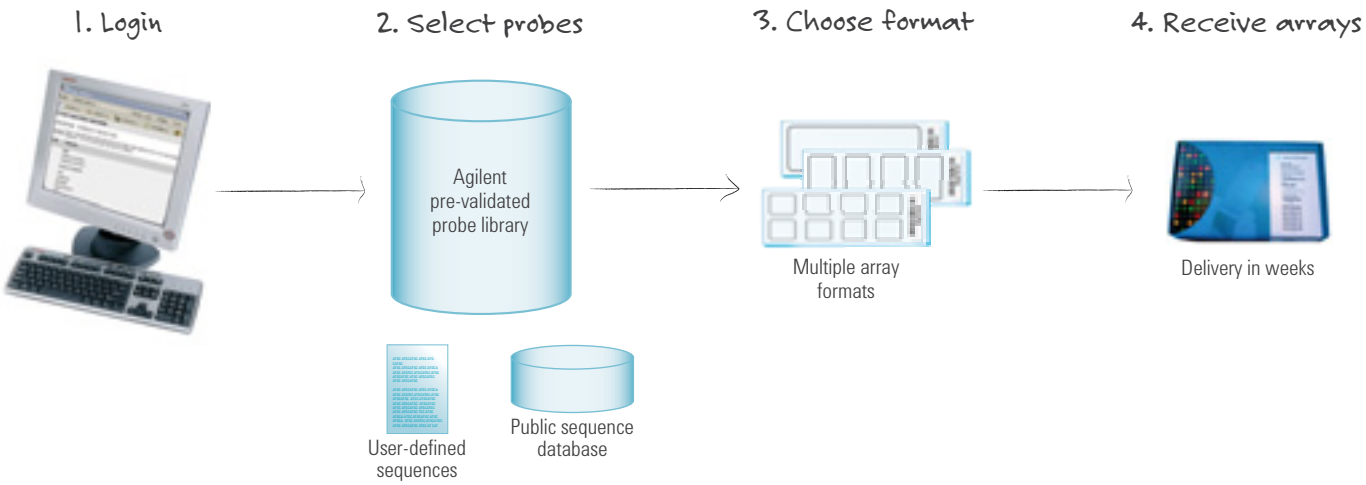
Expanding Catalog of Organisms

- Pre-designed, high-resolution microarrays enable a genome-wide survey and global expression profiling of a wide variety of model organisms. Gene expression probes are empirically validated, delivering increased data quality and reproducible detection of expression changes.

Custom Arrays for Deeper Investigation

- Freedom to investigate any genome of interest. Build an array based on your probe design or use Agilent's database of validated gene expression probes. Take advantage of the insights into design and processing options offered by Agilent's world-class technical team.

Build your own arrays with eArray



Explore a Wide Range of Optimized Probes with eArray

- The web-based design tool, eArray, gives you the power to create your own custom array, quickly and easily, based upon your imported sequences or our extensive database of optimized probes and annotations. Agilent's SurePrint inkjet technology ensures rapid manufacturing of your designs, allowing you to receive your custom arrays in weeks, anywhere in the world.

Scale Experiments to Meet Your Research Needs

Design a focused whole-genome study. Scan target genes on hundreds or thousands of samples. Agilent arrays can be multiplexed for maximum cost-efficiency and performance.

Regardless of the scope of your gene expression investigations, you shouldn't have to sacrifice performance or quality. Agilent's high-density printing technology can create multiple arrays on a single slide to provide experimental flexibility and economic efficiency.

Multiplexed Arrays

- Optimize your experimental design with a variety of multiplexing options, building in the probes that are necessary to ensure accurate results and statistically meaningful data. Our highly-reproducible multiplexed arrays come in a variety of formats, giving you the ability to select the options that best suit your needs.

Highest Sensitivity

Single 244,000-probe arrays with highly refined replicate expression probes are our most sensitive arrays for gene expression experiments where you need to scan the genome in the finest detail.

Excellent Value

Four-plex arrays provide four arrays on a single slide; each array comprises 44,000 probes. These are our most versatile arrays, the workhorse of the product line, optimized for efficiency and coverage: an excellent value for whole-genome scanning.

Targeted Profiling

Our 8-plex format offers eight arrays, each with 15,000 probes. These arrays provide a cost-effective tool for the targeted profiling of a large number of samples.

T PLATFORM PROVIDE YOU WITH THE ADVANTAGES OF COMPATIBILITY WITH ONE- OR TWO-COLOR ANALYSIS? ARE Y
D IN PERFORMING GLOBAL EXPRESSION ANALYSIS TO UNCOVER THE SECRETS OF THE HUMAN GENOME? WOULD YOU LI

Identify Meaningful Transcription Changes with GeneSpring

Identify statistically significant changes in gene expression. Eliminate the bias of subjective analysis. Seamlessly integrate data from multiple applications and platforms.

Agilent GeneSpring GX is the industry-standard gene expression software tool enabling analysis, comparisons, visualization, and management of gene expression data. Designed to break through bottlenecks in data management and analysis processes, GeneSpring software can import and analyze data from any array source. And by triangulating results from mRNA transcript, genotype, protein, metabolite, and other data types, the GeneSpring Analysis Platform identifies genes and pathways that are truly relevant to your biological question.

Advanced Statistical Tools

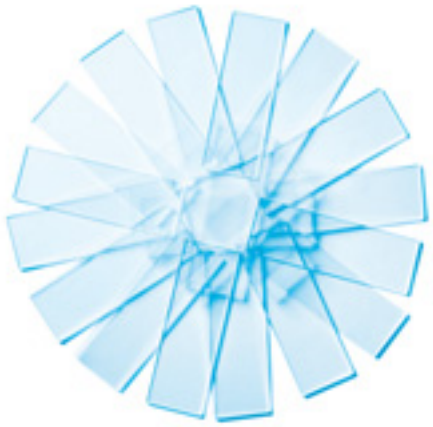
- Apply standard statistical analysis algorithms, and utilize more advanced methods to uncover novel relationships and determine which genes are of the greatest predictive value.

Intuitive Visualization

- Clearly display expression data to help conceptualize your experimental results, for yourself or your peers, and extend information to the larger context of pathway analysis, using the pathway viewer.

Integrated Analytical Platform

- Merge platform or application data seamlessly, while maintaining collaborative capabilities between researchers and labs in a secure, online environment.



Get Started Today

Find out more about the platform that's open to what you need.
Visit **www.OpenGenomics.com**, or contact an Agilent customer center at 1-800-227-9770.

Agilent offers organizations and individual scientists all of the technical solutions they need to successfully incorporate gene expression analysis into their research. Agilent's DNA Microarray Platform offers technical solutions from beginning to end, providing everything you need to achieve success in your research.

OU TRYING TO MEASURE EXPRESSION CHANGES TO DEVELOP SUITABLE DIAGNOSIS STRATEGIES AND THERAPIES FOR
KE TO OBTAIN AN INTRICATE AND COMPLEX SNAPSHOT OF BIOLOGICAL PROPERTIES OF CELLS, TISSUES, OR ORGANS?

Chart a Path into the Future of Genomics

Investigate the latest in peer science. Discover the potential of Agilent's gene expression tools. Connect and learn more today.

As gene expression microarrays are utilized for novel applications, heightened sensitivity and resolution will enable researchers to examine familiar questions from fresh and innovative perspectives. Agilent is committed to providing you with novel tools to define this path, and connecting you with others asking similar questions.

To hear from researchers who are charting their own course in Genomics
visit www.OpenGenomics.com

Find an Agilent customer center in your country:
www.agilent.com/chem/contactus

U.S. and Canada
1-800-227-9770
agilent_inquiries@agilent.com

Asia Pacific
adinquiry_aplsca@agilent.com

Europe
info_agilent@agilent.com

Printed in the U.S.A. November 15, 2006.

5989-5625EN

Agilent Technologies