

# Excellence in Gene Expression Analysis

Gene expression analysis solutions tailored specifically to your scientific goals

**Microarray Analysis** - featuring multiple target labeling technologies appropriate for your specific application. Analyze gene expression from whole genomes utilizing microarrays from Affymetrix\* and Agilent\*, including microRNA profiling. Utilize custom-content microarrays designed by our experienced scientists. Identify genes of interest for detailed follow-up by expression qPCR.

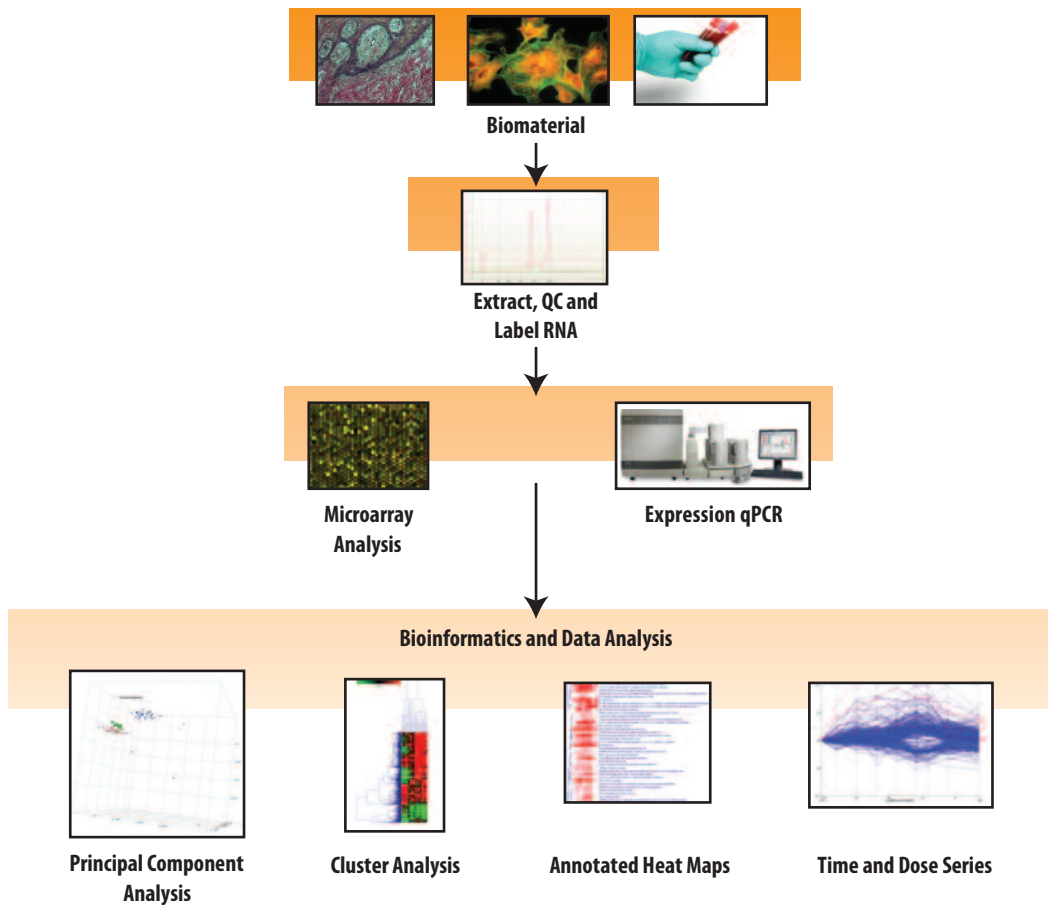
**Expression qPCR** - for highly sensitive and precise detection of individual or focused sets of specific transcripts featuring Inventoried, Made-to-Order and TaqMan Array

assays from Applied Biosystems, as well as custom developed assays and SYBR Green-based methods. Full validation to International Conference on Harmonization (ICH) guidelines is available to support Clinical Trials.

**Bioinformatics and Data Analysis** - to transform high quality raw data into biologically-focused information and knowledge that advances your research program.

Supporting services include RNA Extraction and Biobanking.

*Leveraging more than 50 years of aggregate experience in RNA-based applications, Beckman Coulter Genomics provides cost-effective solutions to address your research and development needs.*



I need a partner using the latest methods and techniques and who can provide the expert analysis we require.

**We Get It.**

## Microarray Analysis

Beckman Coulter Genomics was the first *Agilent Certified Service Provider* and has been an *Affymetrix Authorized Service Provider* since 2003. As a key contributor to the FDA-led Microarray Quality Control (MAQC) consortium and the NIH-sponsored Toxicogenomics Research Consortium, Beckman Coulter Genomics has remained at the forefront of this evolving technology.

Beckman Coulter Genomics:

- is an Authorized Affymetrix Service Provider using GeneChip reagents and arrays for transcript and exon-level analysis.
- was the first and is the most experienced Certified Agilent Service provider for dual-mode gene expression arrays.
- utilizes target labeling procedures featuring reagent kits from Affymetrix, Agilent, Enzo Biochem\*, and NuGEN\*, enabling sample input from picogram to microgram quantities, including specific methods for challenging samples such as RNA recovered from formalin-fixed paraffin embedded (FFPE) specimens.
- designs custom microarrays using public or your proprietary sequence data, available in formats from 15K - 1M features.
- provides validated methods for incorporation of gene expression microarray analysis into clinical trials and to support diagnostic development.

## microRNA Profiling

From the pioneering development of microRNA microarrays in 2004, to becoming the first Agilent Certified Service Provider for microRNA Microarrays, Beckman Coulter Genomics continues to provide value-added services to suit your microRNA research needs.

- RNA extraction methods tailored specifically for the isolation of microRNAs.
- Target labeling procedures requiring as little as 100 ng of total RNA.
- Data analysis solutions co-developed with Rosetta Biosoftware.

## Expression qPCR

Beckman Coulter Genomics provides highly specific and sensitive assays for the detection and quantitation of specific mRNA species, featuring the high-throughput ABI 7900HT Real-Time PCR<sup>†</sup> System. Services include:

- Inventoried and Made-to-Order assays from ABI, including custom and pre-configured TaqMan Array panels.
- Custom designed assays specific to your transcript of interest.

- Absolute or relative quantitation with a choice of normalizing methods.
- Confirmation of microarray results.
- Biomarker analysis for clinical trials.
- Full method validation according to ICH guidelines.

## Experimental Design, Bioinformatics and Data Analysis

Beckman Coulter Genomics offers customized data analyses that incorporate advanced statistical techniques to transform data and information into knowledge. A biologist will consult with you to determine your experimental goals, design the appropriate experiment and perform in-depth analyses to derive maximum value from your data, for instance:

- in-depth trend analysis, Gene Ontology enrichment and pathway analysis.
- Principal Component Analysis (PCA), multidimensional scaling (MDS), supervised and unsupervised clustering methods, multi-factor analysis of variance (ANOVA) and regression analysis.
- selection of correlative biomarkers or biomarker panels with classification power, support vector machines.
- state-of-the-art bioinformatics tools, including the Rosetta Resolver\* system for storage, management and analysis of gene expression microarray and expression qPCR data, Bioconductor R tools, JMP\* and Panther.

## RNA Extraction and Biobanking

Beckman Coulter Genomics utilizes manual and automated methods combined with industry-leading chemistries to efficiently extract high-quality RNA. We have a proven record developing/adapting methods for difficult to process biomaterials. Services include:

- RNA extraction from a wide variety of tissues and species, including whole blood (PaxGene and Tempus), cells, tissues (frozen and RNALater-preserved), and formalin-fixed paraffin embedded (FFPE) specimens.
- Secure, redundant, dedicated storage featuring a centralized validated electronic temperature monitoring system with cascading notifications for out-of-range equipment.
- Efficient, reliable and flexible retrieval, aliquoting, de-identification and anonymization of samples when appropriate for an experimental design.

## Technology Platforms

**Affymetrix GeneChip System** - Affymetrix GeneChip arrays are available for a wide variety of organisms in multiple formats, including whole genome, whole transcript, focused probe sets, and tiling arrays. Beckman Coulter Genomics offers target labeling solutions from Affymetrix, Enzo and NuGEN that provide superior data for multiple sample types from whole blood to single cells.



**Agilent** - As the first Agilent Certified Service Provider, Beckman Coulter Genomics has unrivaled experience with one-color and two-color gene expression and microRNA microarrays. The flexible SurePrint technology facilitates custom microarray design and manufacture in multiple formats. Beckman Coulter Genomics has designed dozens of custom microarrays for multiple customers, including some that have become Agilent catalog products.



**Applied Biosystems** - As longstanding users of the Applied Biosystems 7900HT Fast Real-Time PCR System, Beckman Coulter Genomics has access to over 800,000 pre-designed TaqMan assays, and has designed, developed and validated scores of specific assays for our clients. Beckman Coulter Genomics supports biomarker analysis with fully validated assays as an integral part of your clinical trials.

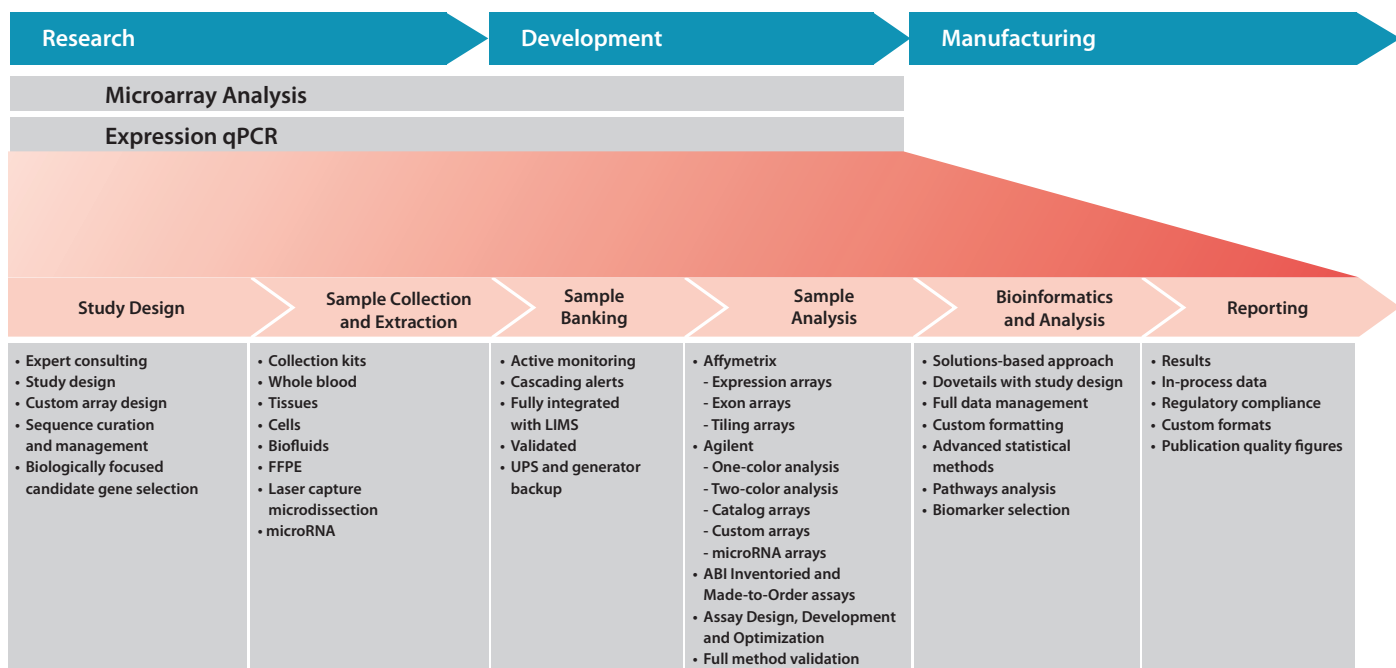


**Rosetta Biosoftware** - Beckman Coulter Genomics was an early adopter of the Rosetta Resolver gene expression data management and analysis system, and has co-developed new analysis methods that benefit our clients. The Resolver analysis environment provides a wide variety of analysis methods, enabling cross-species and cross-technologies analyses.



## Your Complete Solution for Gene Expression Analysis

Beckman Coulter Genomics aligns with your research and development requirements to provide a complete integrated solution, from study design to final reporting, featuring best-in-class technologies and proven expertise. Our focus is on matching our technology and capabilities to your needs. Our expert scientists will consult directly with you to understand your research objectives and to help you design studies that utilize your resources cost-effectively without sacrificing experimental power.



**Beckman Coulter Genomics offers the broadest range of integrated genomics solutions from research to manufacturing.**

Beckman Coulter Genomics provides proven experience and excellence that you can rely on using the most appropriate methods tailored to your specific needs. Our capabilities are fully scalable in terms of capacity and sample input. Regardless of the tissue source, we have an appropriate method to meet your needs. For special projects, our expertise and experience enables us to develop new methods that target your research objectives. Our focus on quality and our commitment to excellence in expression ensure the success of your research and development program.

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† The PCR process is covered by patents owned by Roche Molecular Systems, Inc., and F. Hoffman-La Roche, Ltd.  
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For more information, please visit our website at [www.beckmangenomics.com](http://www.beckmangenomics.com) or contact your local sales representative.

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