



**ACCELERATING PROGRESS  
IS IN OUR GENES**

# **AGILENT'S BIOINFORMATICS ANALYSIS SOFTWARE**

**GENESPRING GENE EXPRESSION (GX)  
MASS PROFILER PROFESSIONAL (MPP)  
PATHWAY ARCHITECT (PA)**



See Deeper. Reach Further.



# GeneSpring GX *The Gold Standard For Microarray Analysis*

Easy to Use Wizard-Driven Workflows

Intuitive Data Management

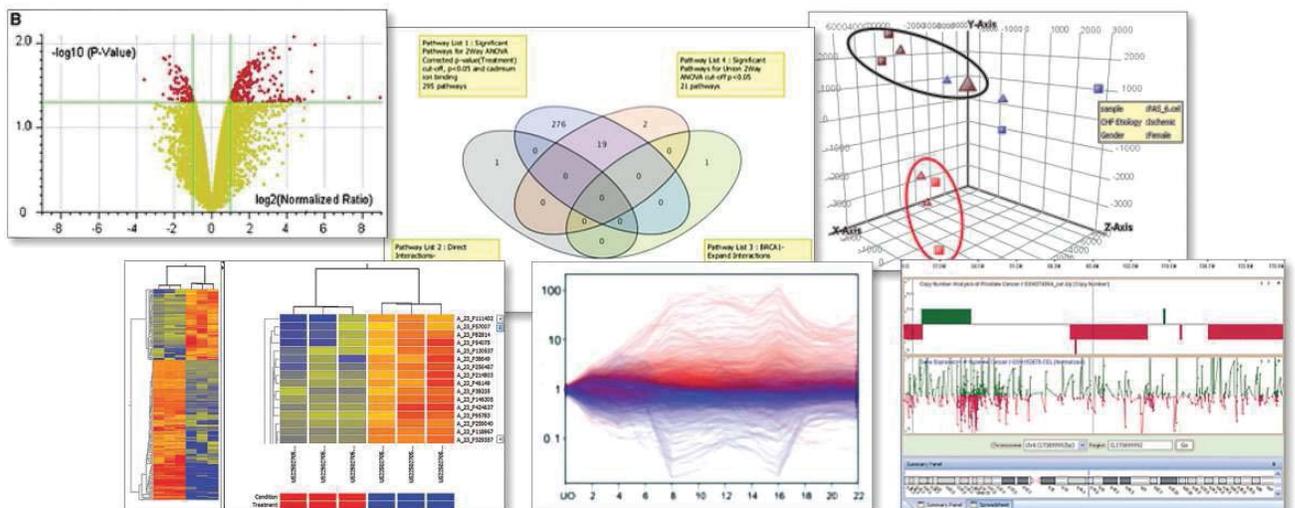
Integrated Pathway Analysis

Powerful Data Visualization

GeneSpring GX has easy to use wizard-driven workflows, as shown on the left. It is intuitive and provides interactive visualization for built-in pathway analysis. GeneSpring provides powerful statistical tools to put your multi-omic data into a biological context.

With GeneSpring GX, researchers can quickly and reliably identify statistically significant differentially expressed genes, alternative splicing events, miRNA expression and effects, and genotype variants using GeneSpring's built-in Gene Set Enrichment Analysis, miRNA target prediction databases, sample classifications, and a fully integrated analytical pathway module like the figures shown below..

- Probe- or gene-level expression analysis on all major microarray platforms, including Agilent, Affymetrix, and Illumina
- microRNA analysis and identification of gene targets
- The ability to do correlative analysis on mRNA expression and miRNA data (or splicing, QPCR, CN)
- Exon splicing analysis using t-tests or multivariate splicing ANOVA and filtering for transcripts on splicing index
- NCBI Gene Expression Omnibus Importer tool for expression datasets

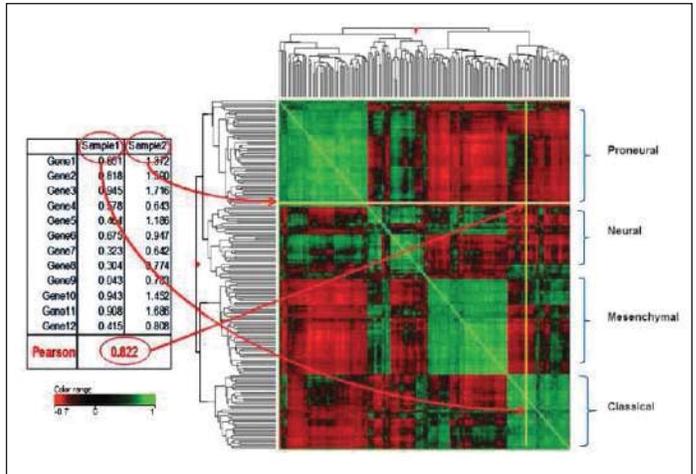


GeneSpring GX

## GeneSpring Correlation Analysis

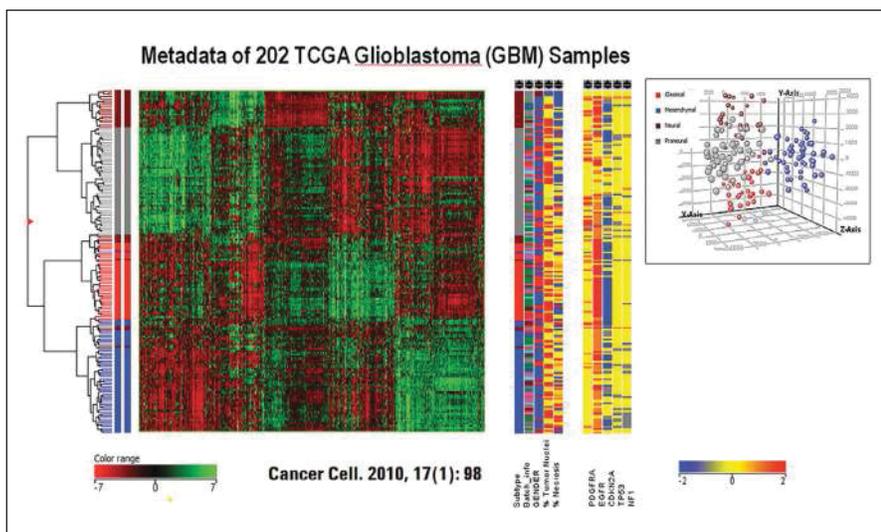
Measures the strength and directionality of pair-wise relationships between any 2 entities or samples

The correlation framework in GeneSpring measures the strength and directionality of entity-entity and sample-sample correlations. The correlation coefficient is calculated between these variables and displayed in the form of a correlation heat map. On the right is an example of a sample-sample correlation was performed with the TCGA glioblastoma gene expression microarray data to display molecular sub-types.



## GeneSpring Metadata Framework

Sample attributes such as phenotype, clinical parameters, time points, quality assessment can be visualized, and sorted to match data.



Hierarchical clustering in GeneSpring allows you to align and visualize individual samples with their metadata information. Metadata from the experimental samples can be displayed across a clustered heatmap and sorted using the profile plot, like the image on the left.



# Pathway Architect

Turning Measurement *into Discovery*

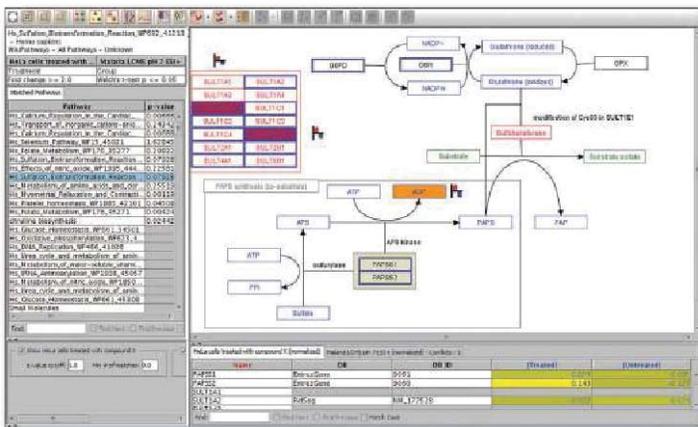
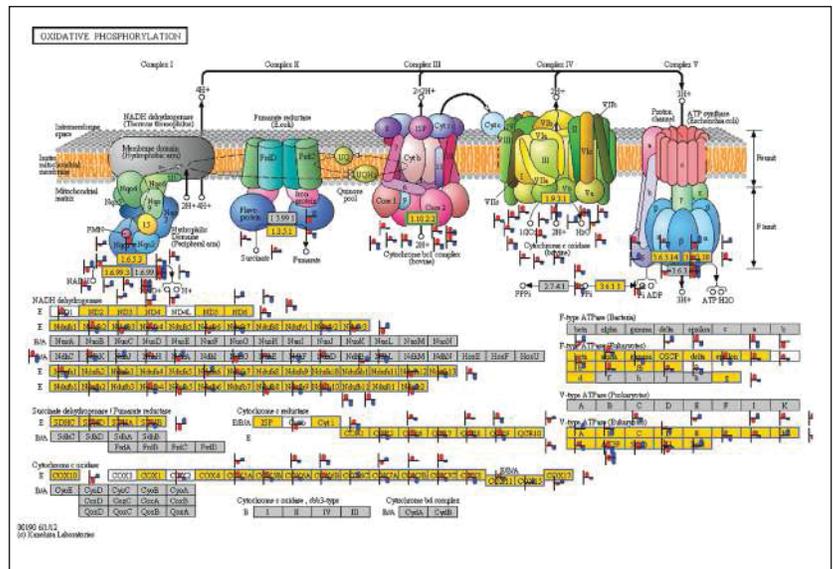


**Software for discovery; solutions for biologists**

GeneSpring provides powerful, workflow-driven statistical tools for intuitive visualization and data analysis. From the figure below, KEGG supported pathways in GeneSpring offers an interactive computing environment that promotes investigation and enables understanding of data within a biological context.

Regarded as the gold standard in expression analysis, GeneSpring allows you to quickly and reliably identify targets of interest that are both statistically and biologically meaningful.

As a biological analysis tool, more than 400 technology types —from microarray annotation to NGS genomes —are prepackaged for use, along with Gene Ontologies, variant databases, and curated pathways. GeneSpring receives over 100 references per month in Google Scholar, and has enabled thousands of researchers to turn biological measurement into biological insight.



## Integrated analysis with GeneSpring's Pathway Architect

By integrating multiple comprehensive analyses from genomics, transcriptomics, proteomics, and metabolomics studies, researchers can generate a better depiction of the biological system, leading to a more accurate and detailed understanding of the molecular pathways that underlie their system's emergent properties.

GeneSpring includes curated, canonical, and machine-generated pathways for intuitive biological contextualization as well as network capabilities to allow researchers to quickly generate and dynamically explore phenotypic networks.



## GeneSpring Product Summary

GeneSpring offers best-in-class analysis for any type of research. Available in four fully compatible versions, GeneSpring allows endless data comparisons and validations.

- **GeneSpring GX** for microarray gene expression, exon, miRNA, CNV and GWAS
- **GeneSpring MPP** for mass-spec based protein profiling and metabolite abundance
- **GeneSpring PA** for canonical pathway analysis and machine-generated network modeling

The same powerful statistics, rich visualizations and biological contextualizations are all available in every version, including normalizations, data quality control, built-in gene ontology and gene set analysis, sample classifications, and a fully integrated analytical pathway module. Most importantly, GeneSpring delivers a full suite of applications built and designed especially for biologists allowing you to directly interact with your data.

For more information, please visit us at  
[genespring-support.com](http://genespring-support.com)



To learn more visit:  
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