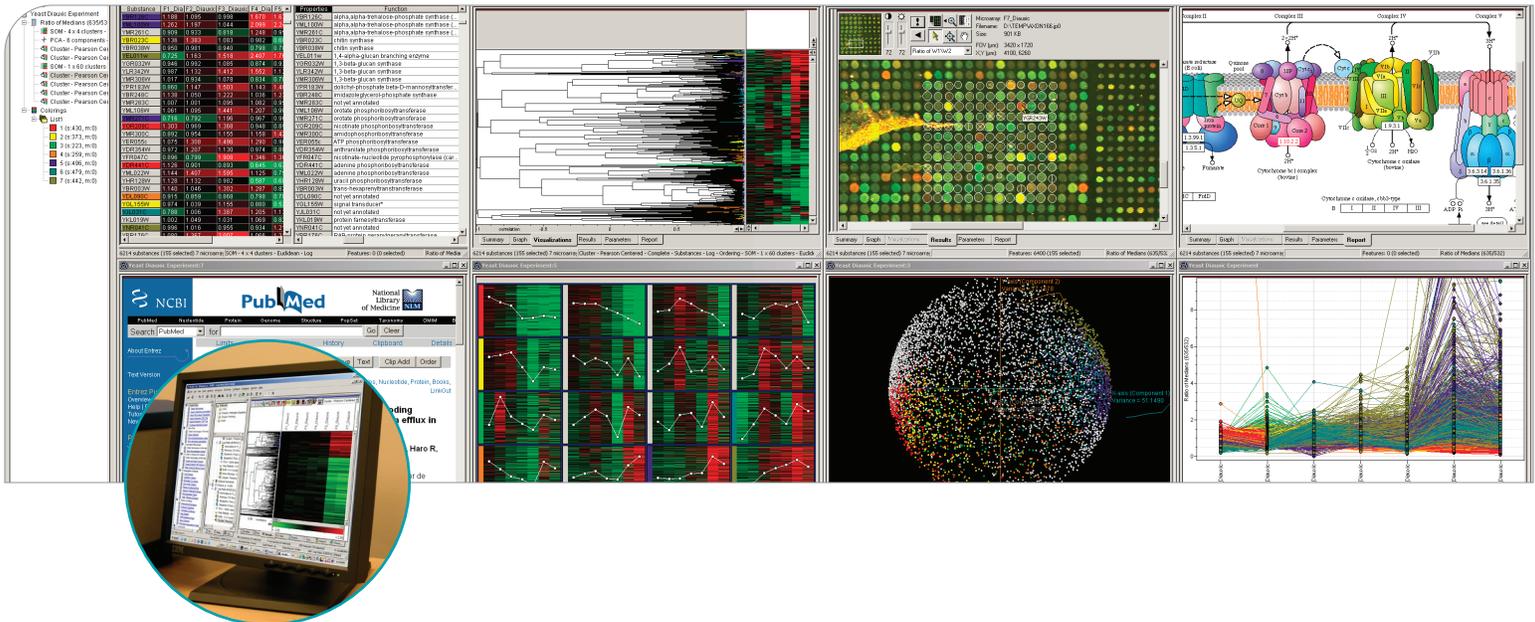


Acuity 4 Microarray Informatics Software

HIGH-PERFORMANCE MICROARRAY INFORMATICS SOFTWARE



- DATA WAREHOUSING
- ADVANCED STATISTICS
- CHROMOSOME VIEWER
- NO ANNUAL LICENSE FEES
- MULTI-THREADED ANALYSIS

Acuity 4 Microarray Informatics Software from Molecular Devices makes enterprise microarray informatics accessible to everyone. From installing and maintaining databases, and managing users and groups, to filtering and analyzing data, the intuitive interface of Acuity 4 allows users to set up and begin running quickly. Designed with performance, speed and scalability in mind, Acuity 4 Software securely stores data and provides sophisticated data mining tools in the form of cluster algorithms, advanced statistics and visualizations to track down elusive data correlations. Because it is a multi-user, enterprise-wide relational database tool, it can accommodate the microarray analysis needs of all lab users.

DATA WAREHOUSING

With Acuity 4 Software's data management tools, data can be stored, accessed and shared with colleagues and collaborators. Central to Acuity 4 is a powerful and scalable relational database that can effortlessly store and retrieve terabytes of data. Acuity 4 Software supports both Microsoft SQL Server and Oracle databases, providing platform flexibility.

Acuity 4 Software imports standard tab-delimited text files, making it easy to import microarray data, experimental descriptions and substance annotations from any source into the Acuity database. Full import of Affymetrix CEL, CHP, CDF and DAT files of all versions are also supported. All other file types (PDF, TIFF, JPG, BMP, GPS, GAL, HTM, etc.) can be imported into the Acuity database for convenient storage, as attachments to datasets. Many database management tools, such as merge microarrays, database backup and restore, are also included.

NORMALIZATION

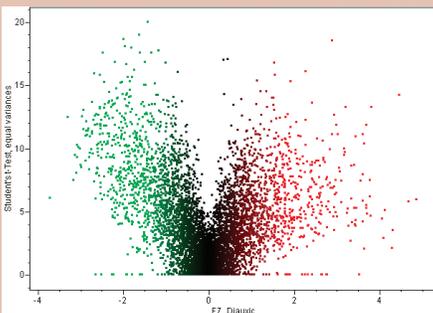
Acuity 4 Software's Normalization Wizard can normalize an arbitrary number of microarrays with the click of a button. Normalize on all spots, control spots, negative controls or any other subset of spots that can be specified with database queries. Normalize groups of microarrays to a time point or a sample. Choose linear ratio-based methods or non-linear Lowess methods, including print-tip groups. For Affymetrix data, Acuity employs the Robust Multichip Analysis (RMA) method of background subtracting, normalizing and calculating summary expression values from the probe-level data in Affymetrix CEL files.

Project Tree Interface



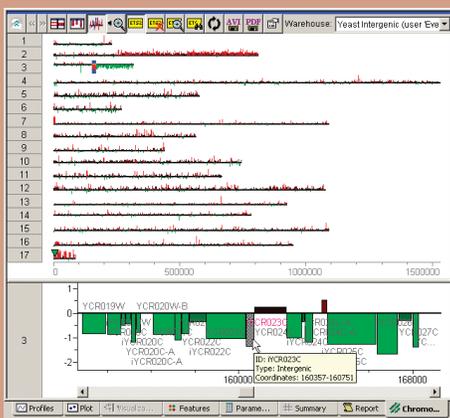
Each dataset is stored in the database together with all the transformations and analyses performed on the data, maintaining an analysis audit trail.

Interactive Scatter Plot



Users can plot any data columns, including results of t-tests. Here, a volcano plot is made by plotting $-\log$ (p-value) versus log ratio, allowing visualization of fold-change and statistical significance at the same time.

Chromosome Viewer Interface



Plot expression or aCGH data directly on fully interactive chromosome maps of a genome. The top view shows a high-level view of expression data across all chromosomes, while the bottom view is a close-up of an area of interest.

MANY CLUSTERING METHODS

Acuity 4 Software has a suite of advanced analysis methods, among them Hierarchical Clustering, Self-Organizing Maps, K-Means and K-Medians, Gap Statistic, Principal Components Analysis (PCA), Gene Shaving and more. Each algorithm offers a large choice of similarity metrics, so the appropriate analysis for the data can be used.

VISUALIZATIONS

In addition to cluster dendrograms, 2-D Self-Organizing Maps, and 3-D PCA plots, Acuity includes a number of other interactive visualizations. The Chromosome Viewer plots expression data directly on chromosome maps, particularly useful for array CGH experiments. A fully configurable scatter plot allows users to plot any data columns, including results of t-tests (volcano plots), ANOVA and PCA. User-definable profiles find matching expression profiles within datasets. For quick and easy data validation, users can also refer back to the original array image within Acuity 4 Software.

STATISTICS

Acuity 4 Software calculates statistics for replicate microarrays, including mean, median, coefficient of variation, standard deviation, maximum and minimum. Significance statistics (p-values) can also be calculated by the Two-Sample Student's t-Test or Mann-Whitney Test, with a choice of multiple hypothesis testing correction. Multiple group comparisons by one-way ANOVA and Discriminant Analysis are also included in the feature set.

ANALYSIS AUDIT TRAIL

All Acuity 4 Software's analysis operations and results are stored sequentially in the database as they are calculated, so that an audit trail is maintained automatically and displayed in the software's project tree for each dataset. An analysis can be easily reproduced, or data transformations removed from microarrays or datasets.

WEB LINKS

With the Web Links functionality of Acuity 4 Software, a substance can be queried in any web-based database. Define as many web links as needed, and look up substances based on any identifier. Link directly to web-based pathway sites such as KEGG or BioCarta and display and interact with them in the Acuity 4 Software interface.

MAGE-ML EXPORT

Export microarrays in MAGE-ML format for upload to web-based databases such as ArrayExpress. A growing number of journals are requiring that microarray data is made available in MAGE-ML format as part of publication. Acuity 4 Software allows data to be exported in this format.

TECHNICAL SPECIFICATIONS

Recommended Computer

Please visit our web site for details on server/client configurations.

- PC with a Pentium processor, 2 GHz or faster
- Windows 2000 or XP operating system (dual-boot systems are not recommended)
- MS SQL[®] Server 2000 or Oracle 9
- 768 MB RAM or more
- Hard disk with 30 GB free
- Recordable/rewriteable CD-ROM
- 1280 x 1024 display with 16 million colors
- Internet Explorer 5.0 or higher
- 100 Base-T network card
- Internet access (for faster version updates and troubleshooting)

ORDERING INFORMATION

Visit our web site for additional information and to download a demonstration version of Acuity 4 Software.

SALES OFFICES

- North America +1-800-635-5577
- UK +44-118-944-8000
- Germany +49-89-9605-880

Check our web site for a current listing of our worldwide distributors.

www.moleculardevices.com

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