MDS Analytical Technologies

Best-in-class Microarray Analysis Solutions

MICROARRAY SCANNERS, MICROARRAY IMAGE ANALYSIS SOFTWARE, AND MICROARRAY INFORMATICS SOFTWARE

The Axon GenePix® family of scanners is the result of over 25 years of experience in low-noise signal amplification and optical design. With high-performance scanner specifications and renowned easy-to-use software, Axon GenePix microarray systems have earned the trust of the research community. In a recent survey of PubMed entries, more publications referenced Axon GenePix than any other slide-based microarray imaging platform. In addition, as the number of microarray applications grows, MDS Analytical Technologies continues to develop high-quality microarray analysis solutions to meet emerging needs.

The Axon GenePix scanning and analysis systems can handle any slide-based microarray study, from small one- or two-fluor applications, to multiple-fluor, high-throughput projects requiring automated sample handling and secure enterprise-wide data management and analysis. As the size and complexity of microarray studies increase, researchers can continue to rely on Axon GenePix microarray scanners and software to provide fast and accurate solutions.

Axon GenePix® 4400A
The Axon GenePix 4400A microarray scanner is a high-resolution scanner that is optimal for ultra-high-density microarrays. The 4400A scanner offers the same laser options and flexibility as the 4300A but with higher resolution of 2.5 µm per pixel.

Axon GenePix® 4300A
The Axon GenePix 4300A scanner offers maximum flexibility. Configurations include up to four excitation-wavelength lasers and sixteen emission-wavelength filters. The 4300A system can be upgraded to the Axon GenePix 4400A system at any time.

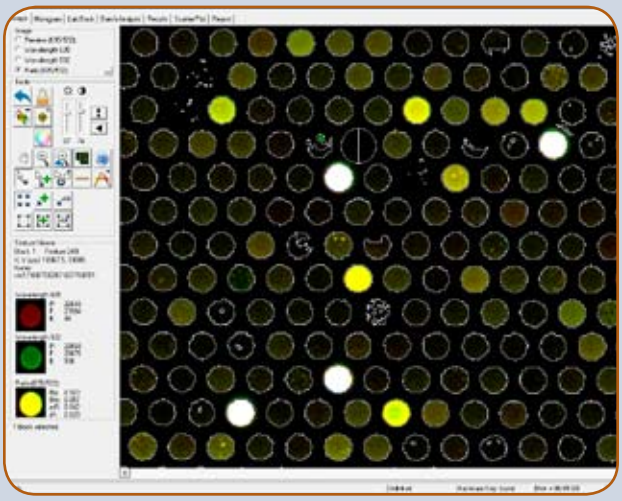
Axon GenePix® 4200AL
The Axon GenePix 4200AL system automatically loads, scans, analyzes and saves results for up to 36 slides per batch, then sends an email notification when the batch is complete. Line-by-line dynamic autofocus ensures superior field uniformity, even for warped slides. The Axon GenePix 4200AL offers the same laser options and fluorophore flexibility as the Axon GenePix 4300A and 4400A systems.

Axon GenePix® 4000B
Offering simultaneous red and green scanning, the Axon GenePix 4000B scanner is the fastest system available. The 4000B combines speed with high-quality imaging and ease-of-use, ideal for labs using one- and two-color microarray assays.

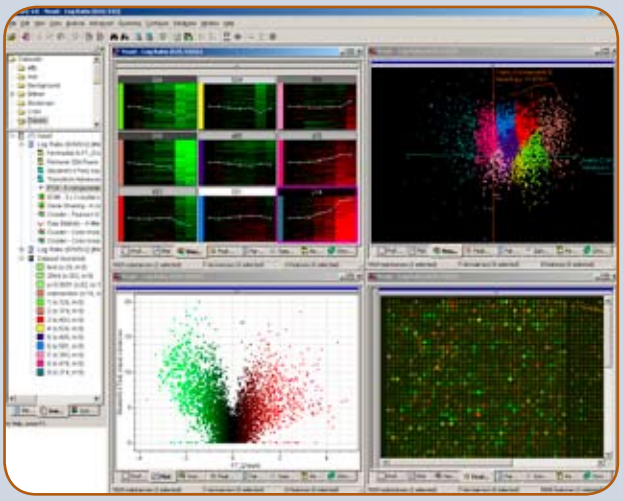
Feature	 Axon GenePix® 4000B	 Axon GenePix 4100A	 Axon GenePix 4200AL	 Axon GenePix 4300A/4400A
Resolution	user-adjustable: 5 µm/pixel, 10, 20, 40, 60, 80, 100 µm/pixel	user-adjustable: 5 µm/pixel, 10, 20, 40, 60, 80, 100 µm/pixel	user-adjustable: 5 µm/pixel, 10, 20, 40, 60, 80, 100 µm/pixel	4300A: user-adjustable: 5 µm/pixel, 10, 20, 40, 60, 80, 100 µm/pixel 4400A: 2.5 µm
Laser choices	532 nm 635 nm	532 nm 635 nm	488 nm, 532 nm 594 nm, 635 nm	488 nm, 532 nm 594 nm, 635 nm
Laser upgradable	no	no	yes*	yes*
Scanning mechanism	simultaneous	sequential	sequential	sequential
Scan speed per channel†	6.5 min. for two channels	6.5 min. per channel	5 min. per channel Approx. 5 hours for 36 slides‡	4 min. per channel
Laser power settings	10%, 33%, 100%	100%	5–100% in 1% steps	5–100% in 1% steps
Focus offset	adjustable in 1 µm steps	fixed focus at slide surface	adjustable in 1 µm steps	adjustable in 1 µm steps
Maximum scan area	22 x 71.5 mm	22 x 71.5 mm	22 x 69 mm	22 x 72 mm
Emission filters	Cy3, Cy5 (fixed)	8-position filter wheel	16-position filter wheel, user-accessible	16-position filter wheel, user-accessible
Detector type	PMT	PMT	PMT	PMT
Dynamic range	16-bit	16-bit	16-bit	16-bit

* Lasers can be installed at a later date. † Full-size scan area at 10 µm/pixel resolution. ‡ 2 channels, full-size scan area at 10 µm/pixel resolution.

Axon GenePix® Pro Software



Axon Acuity® Software



Axon GenePix® 4100A

The Axon GenePix 4100A system offers affordable quality with red and green excitation lasers and up to eight emission-wavelength filters. Researchers can now afford their own microarray scanner instead of waiting to use a shared instrument.

Axon GenePix® Pro Microarray Analysis Software

In addition to controlling and monitoring the performance of all Axon GenePix microarray scanners, Axon GenePix® Pro software is also the industry standard for microarray image analysis. Analyze 16-bit TIFF images from any microarray scanner using Axon GenePix Pro software's unique and powerful spot-finding algorithms. Scan and analyze individual arrays or in batches.

Axon GenePix Results (GPR) and Axon GenePix Array List (GAL) files are industry standard formats. Axon GenePix Pro also exports results in MAGE-ML format to satisfy journal submission requirements, and to enable researchers to share and compare data with colleagues and collaborators. Axon GenePix Pro features:

- Independent block/sub-grid scanning and analysis
- Image alignment, rotation and measurement
- Automated spot-finding algorithms
- Multiple background subtraction methods
- Single-image and batch analysis
- User-defined feature flagging queries
- Interactive scatterplots
- Powerful scripting interface
- Seamless export to Axon Acuity® microarray informatics software
- And much more!

Axon Acuity® Microarray Informatics Software

Get the most information out of every experiment. With Axon Acuity software's intuitive and data-centric interface, all data and analysis results are available, including analysis audit trails, providing transparent analysis control. Axon Acuity software features:

- Cross-platform functionality: compatible with both Microsoft SQL 2000 and Oracle 9 and 10g databases
- Ability to store all microarray files in the same database: GPR, GAL, GPS, TIFF, DAT, PDF, etc.
- Intuitive file management interface
- Annotation warehouse management
- Multiple normalization methods (including LOWESS)
- Robust Multichip Analysis (RMA) of Affymetrix probe-level data
- Hierarchical clustering, K-Means, K-Medians and self-organizing maps (SOMs) with many different similarity metrics
- Gene shaving
- Statistics calculated for replicate arrays
- Multiple options for calculating significance statistics
- One-way ANOVA for multiple group comparisons
- Interactive scatterplots, histograms and expression profile plots
- Powerful scripting interface
- Chromosome viewer
- And much more!

For detailed specifications on any of our products, please visit our web site at **www.moleculardevices.com**.

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