

# ImageXpress Micro High-Content Imaging Systems

Cellular imaging solutions for your research and screening



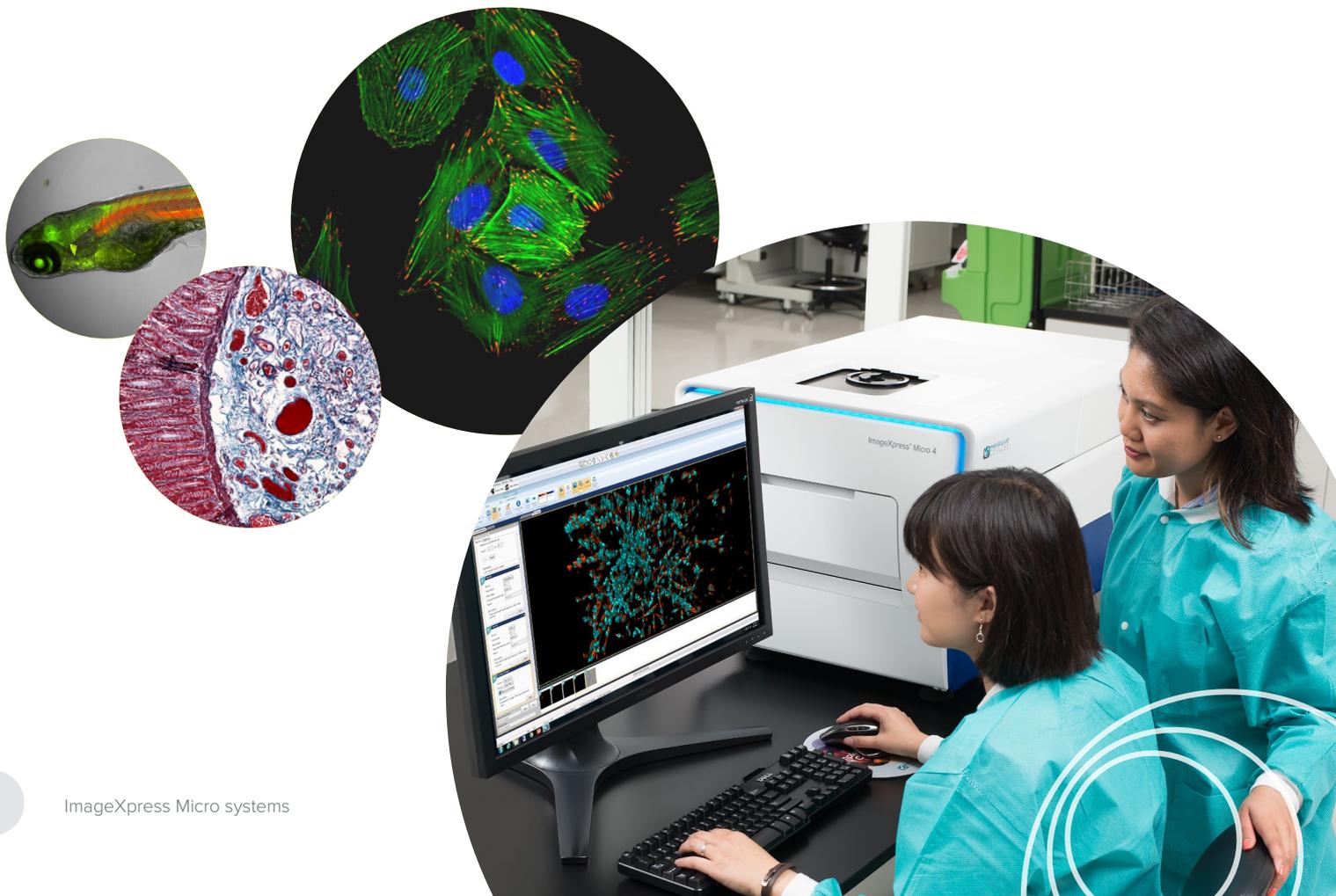
# Deeper insight into your research

## Higher quality images, faster throughput and more powerful analysis

Our high-content imaging family of products provides the ultimate flexibility and performance to help researchers and screeners perform tailored assays and shorten time to result. From robust imaging systems packaged with intelligent analysis software to integrated data management and visual informatics, our complete solution addresses an expansive set of applications from basic imaging research through complex biology.

### CAPABILITIES

- Acquire statistically relevant data quickly with large field of view imaging
- Analyze large image sets in parallel and eliminate data bottlenecks
- Expand your research capabilities with transmitted light, liquid handling, confocal, and environmental control options



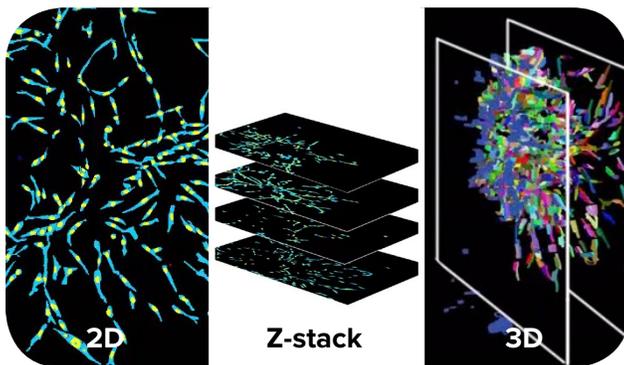
# Improve visualization and quantitation with 3D assay models

## Confocal capability improves image clarity and data quality

Compared with widefield imaging, acquisition of thick samples with confocal imaging have reduced background and increased sharpness, resulting in excellent image segmentation. The ImageXpress® Micro Confocal High-Content Imaging System provides improved quantification for live or fixed cell assays. This versatile imaging system features our AgileOptix™ Spinning Disc Technology which allows you to explore more physiologically relevant, complex 3D models, including spheroids, tissues, and whole organisms.

### Enhanced imaging of tissues and 3D matrices

- Select specific cells of interest in 3D matrices such as neurons and stem cells
- Reject high-background fluorescence in thick tissue samples
- Acquire Z-stacks easily with 3D reconstruction capability



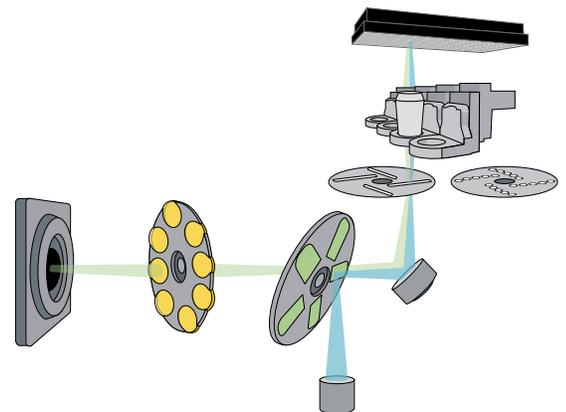
**Explore a new dimension.** Collect and view data at the 2D plane, collect z-stack and view in 3D space, and make complex 3D measurements like distance, volume, and intensity. Breast cancer cells grown in semi-solid gel and imaged at 10X using ImageXpress Micro Confocal system 60 µm pinhole.

## Select a spinning disc confocal geometry matched to your assay requirements.

Our optical options make it easy to select and configure your system to ensure the best images for your assay.

	Spinning disc geometry		
	60 µm pinhole	50 µm slit	42 µm pinhole
High-sensitivity detection	●	●	●
Fast acquisition	●	●	●
>3 log dynamic range*	●	●	●
Widefield mode for flat biology	●	●	●
Most confocal applications	●	●	●
Highest resolution imaging			●
High-throughput applications		●	

\*Powered by our highly responsive sCMOS sensor and advanced solid state light source.



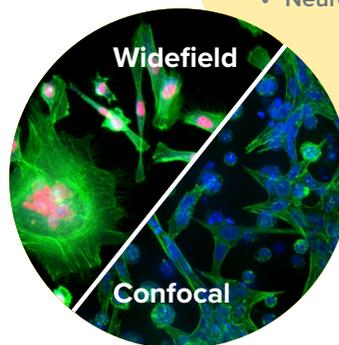
# Expedite discovery with robust imaging

Capturing low- to high-resolution images is easy with the ImageXpress Micro systems, which support up to 100X objective lenses and generate research-quality images at high speed. These systems provide premiere X, Y, and Z positioning with 100 nm resolution to precisely, and repeatably locate and identify sub-cellular features. Pinpoint positioning simplifies multi-site, time-lapse experiments, and tiling for large multi-image experiments. Rapid positioning, in combination with the laser and image autofocus, plus an easy-to-use interface, further improve the high-content analysis workflow.

Offering more data points per image, ImageXpress Micro systems decrease your time to perform cellular- and high-resolution screens by using a large field of view camera. Assay window and reliability are enhanced with 3-log dynamic range for publication quality images to enable your scientific breakthroughs.

Clearer images and improved quantitative screening for a wide range of applications including:

- Autophagy
- Toxicity
- Spheroids
- Small organisms
- 3D cell culture
- Neurite outgrowth
- Neurobiology
- GPCR screening

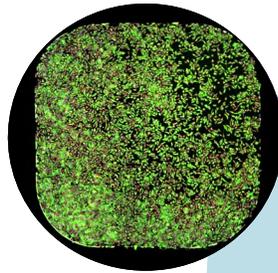


## Better data, faster results

- Shorten imaging time with FOV > 1.96 mm<sup>2</sup> with 10X objective, enabling fewer images per well
- Minimize downtime with our robust system performance
- Improve throughput for better data in less time

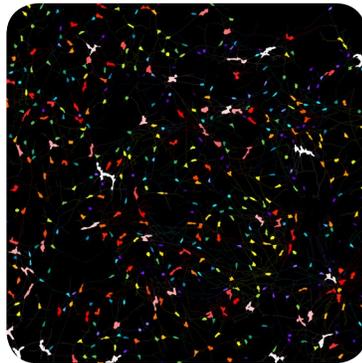
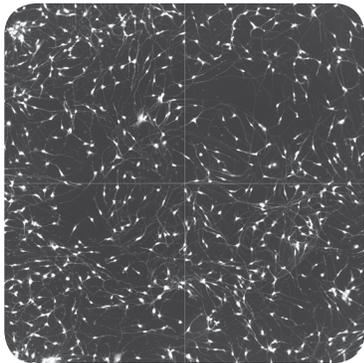


The ImageXpress Micro 4 and Micro XLS systems are versatile instruments based on an inverted widefield microscope that comes standard in all models. The models are equipped with a large field of view camera and an on-demand solid state light engine, providing greater throughput. The ImageXpress Micro 4 system also offers a field upgradeable option to add confocal imaging capability. Supported by MetaXpress® High-Content Image Acquisition and Analysis Software, the ImageXpress systems provide a fast and robust platform to translate new discoveries into scientific breakthroughs.

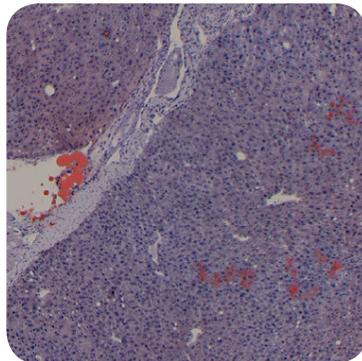
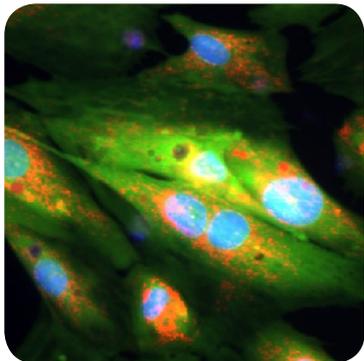


### Exceptional image acquisition at high speed

- Capture an entire well of a 384-well plate with a single image at 4X magnification
- Acquire a 1536-well plate at 4X magnification, at the same speed as a 384-well plate
- Throughput of >185K wells/day confocal, >235K wells/day widefield



**Accurate stage positioning to capture high-resolution tiled or stitched images.** Precise tiling of images possible with < 100 nm stage resolution. **Left:** Image is a 2 x 2 array of images from an ImageXpress system. **Right:** Image shows neurite segmentation is not compromised when it spans multiple images.



**Fluorescent and brightfield imaging.** **Left:** iCell cardiomyocytes stained with Hoechst for identifying nuclei (blue), MitoTracker Red for healthy mitochondria (red), and a live cell cytoplasmic reagent, Calcein AM (green). Image is taken with 40X plan fluor objective. **Right:** Slide mounted mouse liver tissue slice stained with Oil Red O (red) and hematoxylin and eosin (purple).

# An end-to-end screening solution for your most complex biological questions

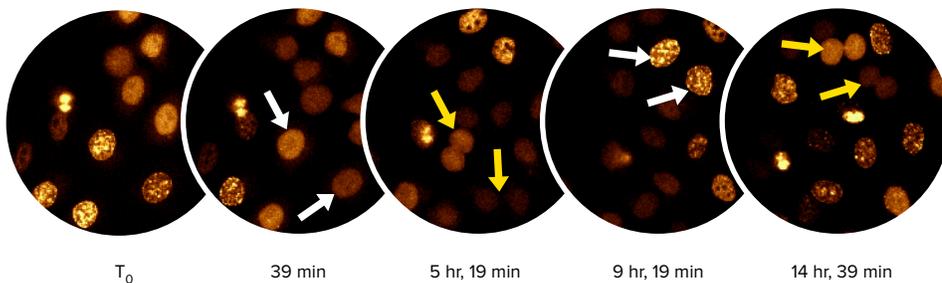
## Delivers seamless workflows from image acquisition to data analysis

Enjoy the benefits of a streamlined high-content screening (HCS) workflow in a fully integrated environment with our comprehensive end-to-end imaging solutions that fit your research needs.

### Acquire

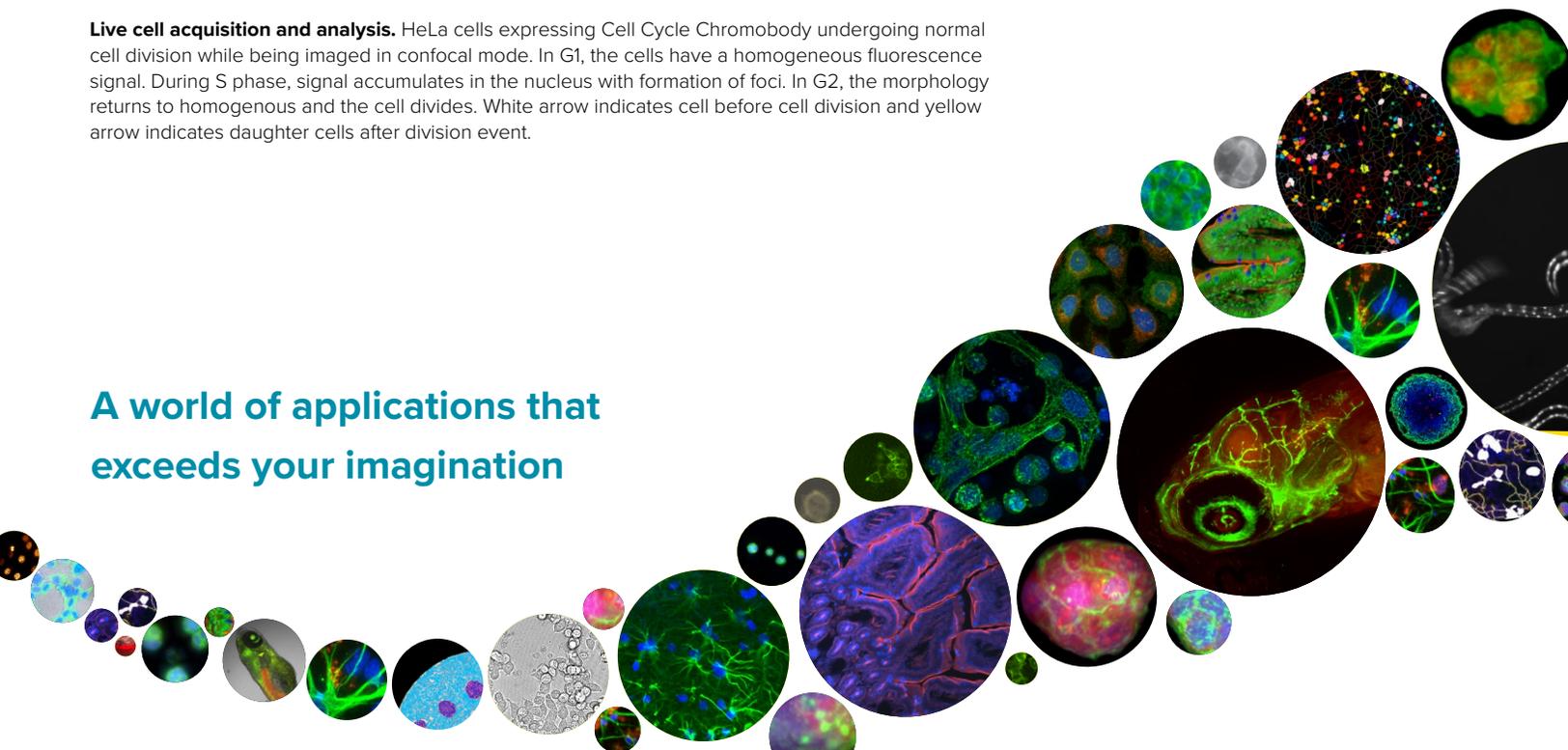
MetaXpress® software powers our range of ImageXpress Micro systems, giving you precise control over image acquisition and analysis, all within a unified interface.

- Acquisition wizard for the entire workflow avoids image import/export steps
- Laser-based and software configurable image-based auto-focusing system ensures robust focus across a wide range of sample types
- Acquisition of live cell images enables monitoring of cell growth, death, differentiation, migration, viral or bacterial invasion, cancer metastasis, chemotaxis, drug toxicity, or translocation



**Live cell acquisition and analysis.** HeLa cells expressing Cell Cycle Chromobody undergoing normal cell division while being imaged in confocal mode. In G1, the cells have a homogeneous fluorescence signal. During S phase, signal accumulates in the nucleus with formation of foci. In G2, the morphology returns to homogenous and the cell divides. White arrow indicates cell before cell division and yellow arrow indicates daughter cells after division event.

**A world of applications that exceeds your imagination**



## Analyze

Avoid delays in image analysis and data processing using our MetaXpress software with application modules that allow you to quickly and easily analyze your data.

- Plug-and-play application modules can be adapted to hundreds of image-based analysis workflows
- Custom module editor empowers you to further tailor your image analysis routines for novel assays or screen complex models using our 3D analysis toolkit
- Adaptive Background Correction™ adjusts image segmentation to the local intensity ranges and to features within and between cells for better quantitation
- 2D projection algorithms include best focus, maximum, minimum, and sum projection for easy interpretation of 3D image data
- Save as cell-by-cell and/or image-by-image data

AcuityXpress™ Cellular Informatics Software, data visualization, mining and hit selection are ready to use upon system installation.

Obtain results at the same speed as acquisition, using MetaXpress Powercore software.

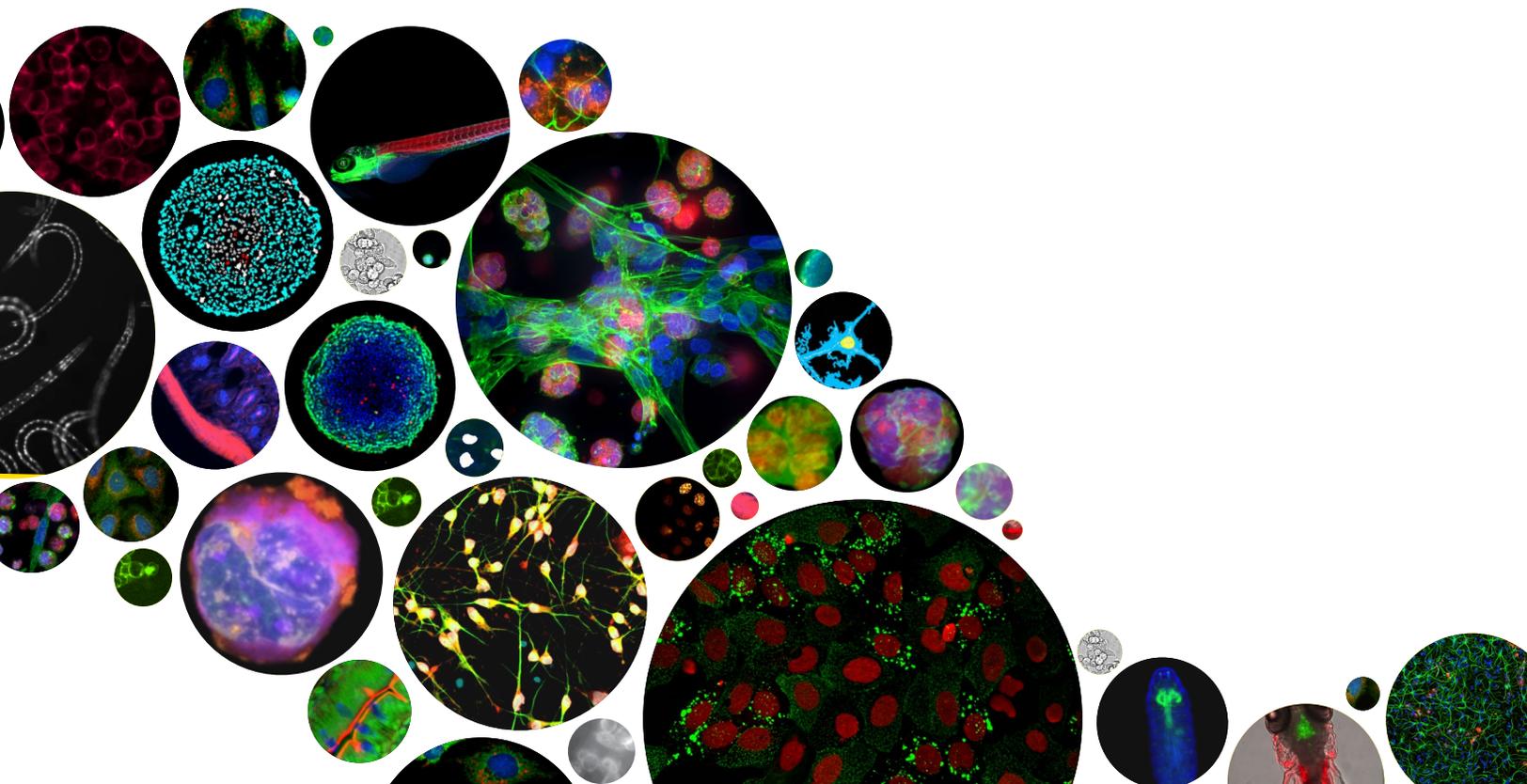
- Eliminate image analysis bottlenecks with parallel processing
- Easily scale processing to match your needs



## Store

Regardless of the acquisition system used, images acquired can be stored in the secure MDCStore™ Data Management Solution.

- Accessible for sophisticated analysis by the MetaXpress High-Content Image Acquisition and Analysis Software
- Data migration portal for integration with third-party imaging systems or analysis tools to external host databases or third-party applications



# Specifications

Features	ImageXpress Micro Confocal	ImageXpress Micro 4	ImageXpress Micro XLS
Broad magnification range	1X to 100X magnification Air objectives: up to 0.95 NA Oil objectives: up to 1.4 NA		
AgileOptix™ technology	✓	Field upgradeable option	N/A
Large, customizable field of view	One image captures whole 384 well (11 mm <sup>2</sup> at 4X)		
Speed (wells/day)	Confocal >185,000 Widefield >235,000	>225,000	>200,000
Fast frame rate for applications like calcium oscillations in cardiac cells	50 fps	100 fps	
High-speed laser autofocus with integrated image autofocus option	✓		
Precise, automated linear encoded voice coil driven X, Y, and Z stages (Stage resolution: <100 nm)	✓		
Compatible sample formats	Slide, 96-well, 384-well, 1536-well as well as unusual formats like transwell and round-bottom plates		
Environmental control option	<ul style="list-style-type: none"> <li>• Multi-day, live cell time-lapse imaging</li> <li>• Provides appropriate atmospheric conditions (e.g. 5% or 10% CO<sub>2</sub>)</li> <li>• Mimics physiological environment (30-40°C ± 0.5°C)</li> <li>• Controls humidity and minimizes evaporation (0.5 µL/well/hour for 96- or 384-well format)</li> </ul>		
LED-TL option for label-free imaging	✓		
Phase contrast transmitted light option for label-free imaging	<ul style="list-style-type: none"> <li>• High contrast imaging where unstained cells are easily viewed or separated from background (4X-60X)</li> <li>• Ideal for non-fluorescent histochemically stained samples</li> <li>• Nikon 100W Pillar Diascopic Illuminator with TE-C ELWD 0.3 NA Condenser with 65 mm WD and PhL, Ph1, and Ph2 selectable phase rings</li> <li>• Fluorophore-independent morphology visualization with fluorescent imaging overlay</li> </ul>		N/A
Fluidics option for compound addition and washing	<ul style="list-style-type: none"> <li>• Single-channel pipettor</li> <li>• Dispense volumes from 3 µL to 200 µL (±1 µL; ± 5%)</li> <li>• Compatible with 96- or 384-well format FLIPR Tetra® System pipette tips</li> <li>• Holds two plates for compound addition or media exchange</li> <li>• Optional plate heating</li> <li>• Environmental control</li> </ul>		N/A
Software	<ul style="list-style-type: none"> <li>• MetaXpress High-Content Image Acquisition and Analysis Software (Pre-designed Application Modules, Custom Module Editor, Software deconvolution option, MetaXpress PowerCore High-Content Distributed Image Analysis Software)</li> <li>• MDCStore Xchange Data Conversion Service</li> <li>• AcuityXpress Cellular Informatics Software</li> </ul>		

Note: all options, filters, and objectives are available at point of sale or as after market upgrades. Configuration shown in this datasheet does not encompass all configurations available. Contact your sales and support team today to identify the system configuration most suitable for your applications.

## Contact Us

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