

# Tools for efficient core sampling in tissue micro arrays

*ArrayImager™ by Visiopharm*



# Innovative grid imaging and configuration control

## CREATE FLEXIBLE AND EFFICIENT PROTOCOLS FOR AUTOMATED IMAGING AND ANALYSIS ACROSS SEVERAL TISSUE MICRO ARRAYS

The tissue micro array (TMA) technology presents methods for screening vast quantities of biomarker data. This enables the evaluation of a number of key determinants in disease states such as prevalence, progression and prognosis across clinical and research assays. Historically, one of the greatest challenges in using TMAs has been the bottlenecks of efficient image acquisition, core specific analysis, and data management.

ArrayImager™ manages the image acquisition, viewing, analysis and scoring stages of stratified specimen profiles across large studies with complex arrays. The user can quickly setup an imaging protocol which will capture high magnification images of the individual cores and store them in the integrated database.

User specified or predefined grids are applied to the array slide and the user has full control over which cores and grid sectors to include. In this process, automated image segmentation is used to assist the positioning of the grid on individual cores. The system allows importing of ID lists which applies identifiers to each core, linking the generated images and data to information about the core, such as patient ID or clinical pathology score.

ArrayImager™ performs automated imaging of the specified cores at any magnification and allows entire studies to be imaged unattended, significantly increasing the processing capacity of an advanced workstation. The imaging process employs auto focusing, with color and background correction to ensure critical focus and color balance is maintained. It also allows capture of Z-stacks and rendering of extended focus projections.

# Intelligent data management

## KEEP TRACK OF ALL DATA LINKED TO INDIVIDUAL SPECIMEN CORES IN YOUR STUDIES

The tracking of critical data is pivotal in studies of the link between biomarker data and pathological data. In ArrayImager™, images, analysis results and other information such as image grading, pathology scores or patient data are all stored together in the integrated MS-SQL database. This ensures data integrity and all image data can be reviewed, analyzed and linked to the original position on the TMA. Advanced search functions in the database allows for data mining across multiple studies and arrays.

The database can be accessed from remote workstations, enabling the imaging station to serve multiple researchers at the same time. This enables researchers to share study findings while maintaining the instructive information critical to histological grading.

# How does it work?

## COMPLETE WORKFLOW CONSISTS OF FIVE STEPS

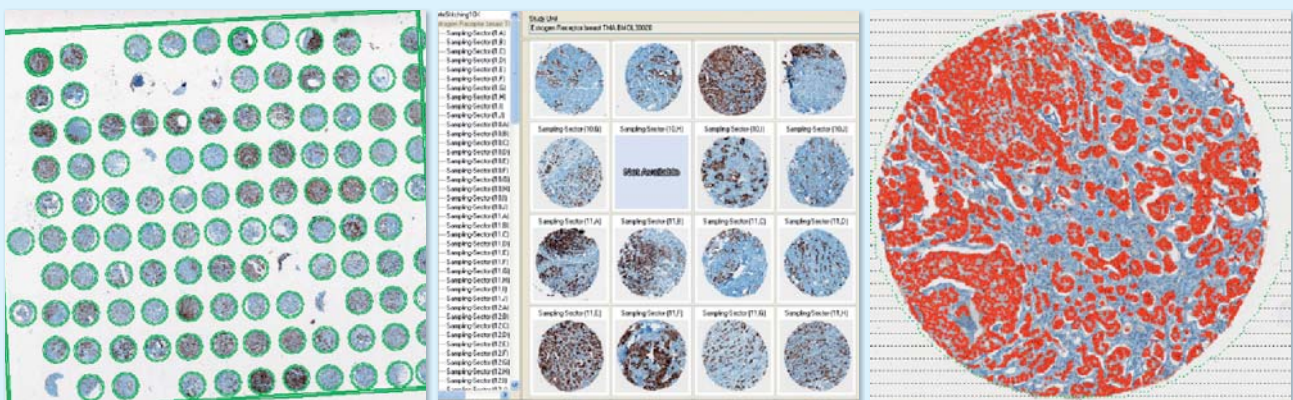
1. **Create Super Images** – Automatic acquisition of overview images for all slides mounted on the stage or a collection of virtual slide files
2. **Establish Core Grid Pattern** – Place core grids on each Super Image using the built-in core detector to assist accurate and precise positioning
3. **Select Imaging Method** – Use systematic uniform random sampling or complete scanning to acquire high magnification images of regions as individual images, stitched images or z-stacks
4. **Start automated imaging** – Perform unattended image capture on specified slides, populating the database with series of images. With the Visiomorph™ module, the sampled images can be analyzed during capture and the results stored with the images
5. **Review Sample Images** – Quickly review the sampled images with an option to automatically retake individual images if necessary

# Extending the ArrayImager™ system

## ONE SYSTEM FOR ALL PURPOSES

ArrayImager™ is an integrated part of the Visiopharm Integrator System (VIS) platform. VIS is a modular and fully configurable technology platform that offers a unique combination of image acquisition (MicroImager™,

ArrayImager™, and FluolImager™), hardware control, data management, and analysis tools (Visiomorph™ and NewCAST™). The WManager™ upgrade enables support for all major whole slide imaging formats.



### Example: Quantification of ER-positive cells

The combination of image analysis and automated imaging of individual cores offers an alternative to classical pathological scoring.

## TRAINING AND SUPPORT

Besides on-site installation and training, Visiopharm offers on-line support, allowing our experts to quickly assist in real time in developing Standard Operating Procedures and analysis protocols, guiding users every step of the way

## HARDWARE COMPATIBILITY

Visiopharm provides systems fully configured with all hardware components, but we can also help you to retrofit to your existing system.



*Visiopharm technology is designed to facilitate every step in the work-flow from prepared tissue sections to scientifically valid quantitative end-points reflecting important tissue properties.*

Fully compatible with all the leading hardware brands.

<b>Microscopes:</b>	Leica, Nikon, Olympus (incl. DSU), Zeiss
<b>Whole Slide file formats:</b>	Aperio (Scanscope), Hamamatsu (Nanozoomer), 3DHISTECH (Pannoramic), Zeiss (Mirax), Leica (SCN400), Olympus (dotSlide and VS110)
<b>Motorized stages:</b>	Ludl, Märzhäuser, and Prior
<b>Slide loaders:</b>	Ludl
<b>Camera:</b>	Olympus, Hamamatsu, Basler, Leica, QImaging
<b>PC:</b>	Microsoft Windows XP™, Vista™ and 7™

Please see our latest hardware integration at:  
<http://www.visiopharm.com/page-04-00.shtml>

## MORE INFORMATION

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