Experience the future of **digital pathology**

3DHISTECH
Digital Microscopy and Pathology Solutions
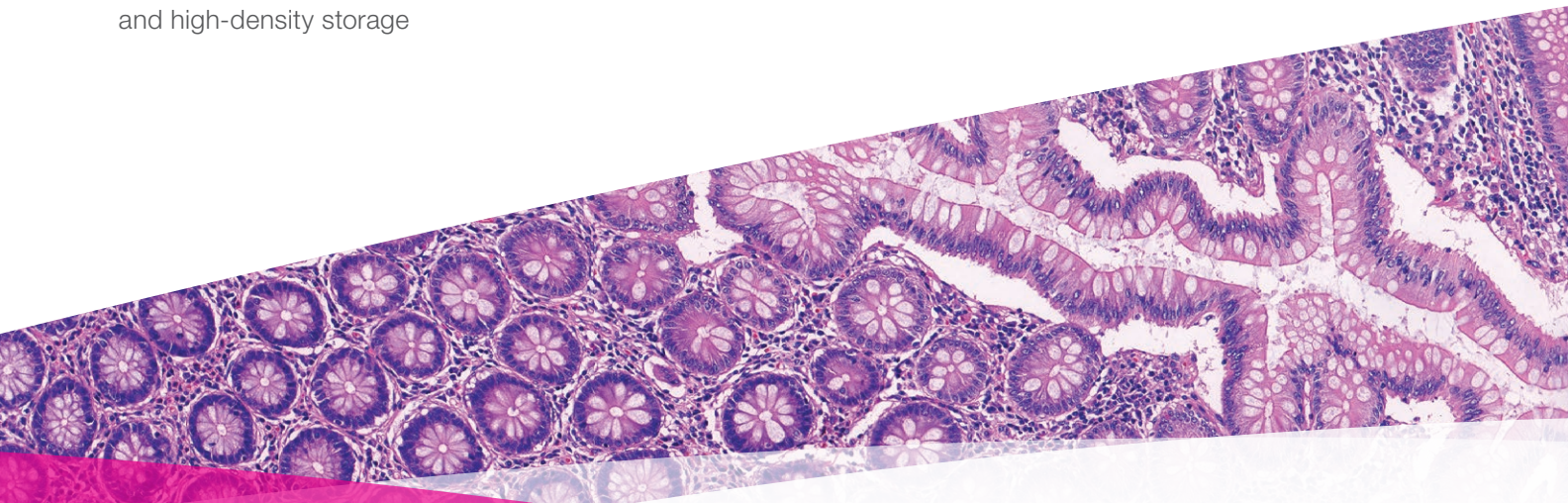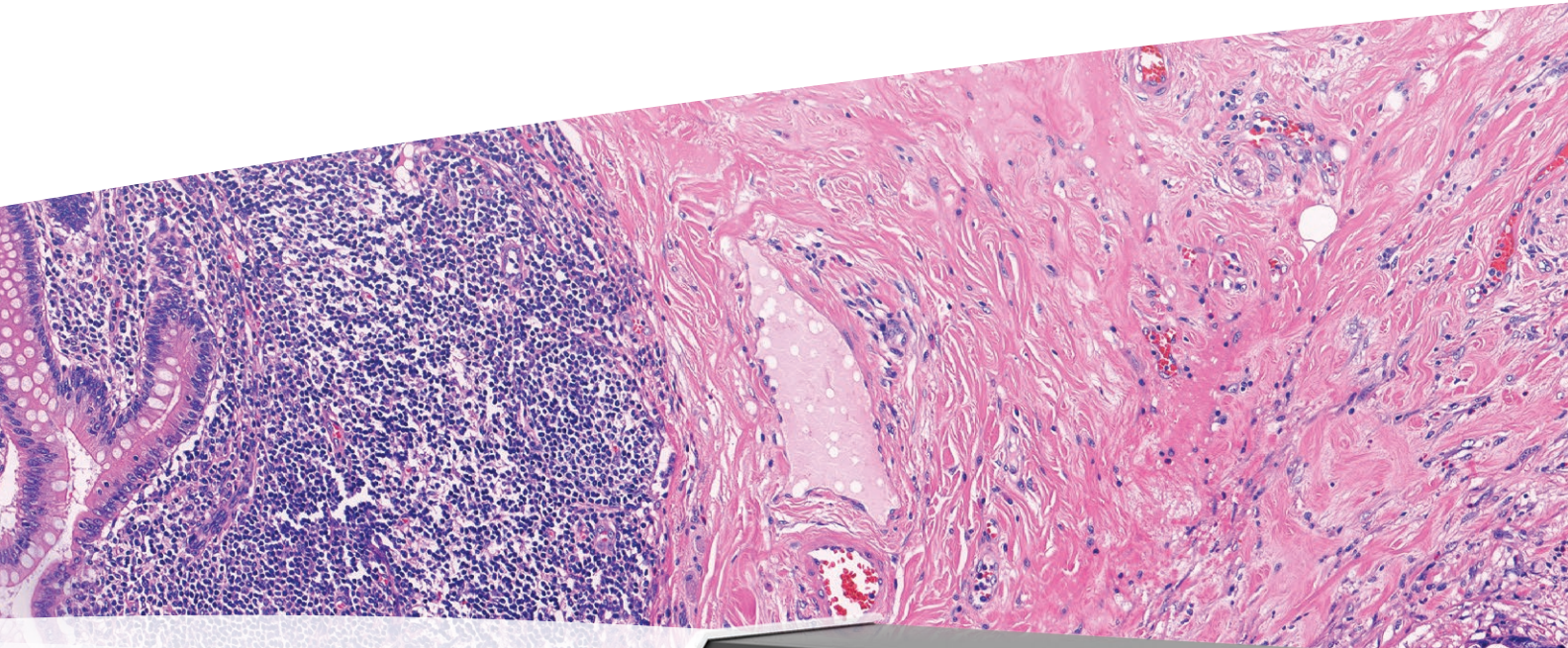
3DHISTECH

epredia

Discover digital

Prepare your laboratory for the future
with digital pathology solutions from
3DHISTECH™ and Epredia™.

- Whole-slide scanners that accurately capture minute
  details at incredible speeds

- Software systems that enable collaboration across
  laboratories – and industries.

- Microarrayers enabling high-efficiency processing
 and high-density storage

P1000

3DHISTECH

The difference is clear

The 3DHISTECH Pannoramic family from Epredia is a comprehensive range of digital slide scanners. From an affordable single-slide model to high-speed 1000-slide capacity units, high-quality brightfield to versatile brightfield and fluorescent scanning in the same instrument – we offer systems designed to fit the needs of today's leading laboratories.
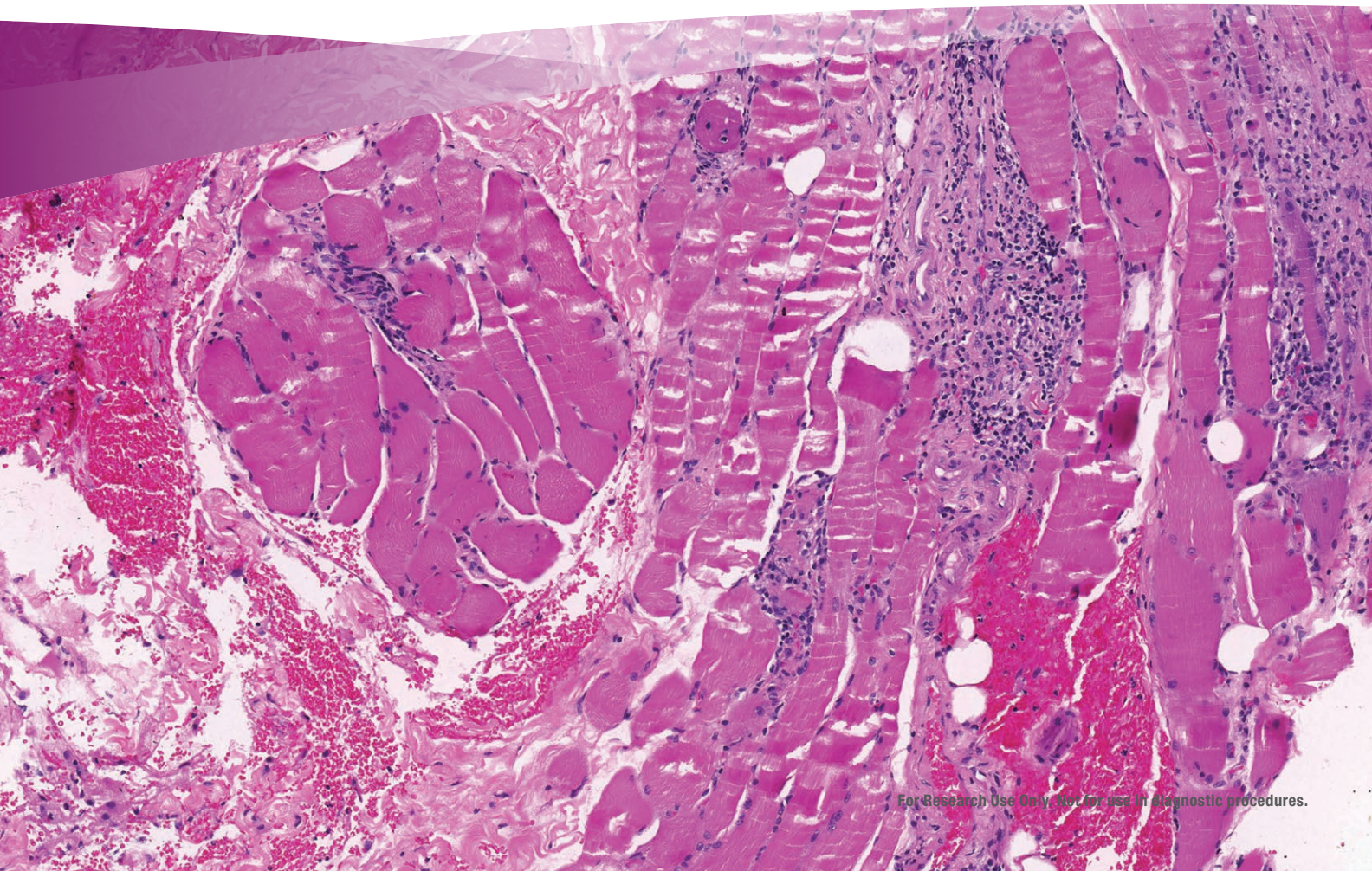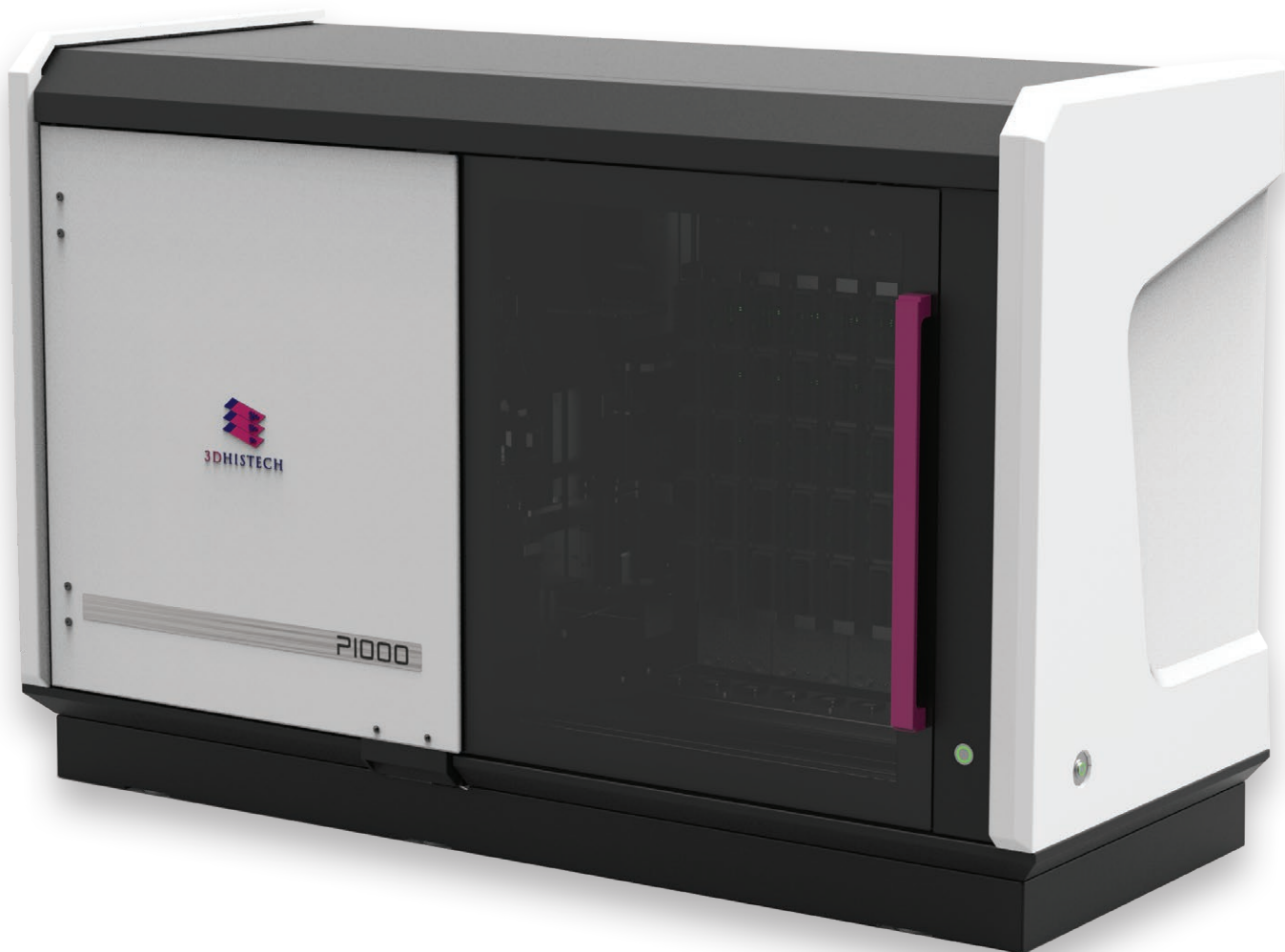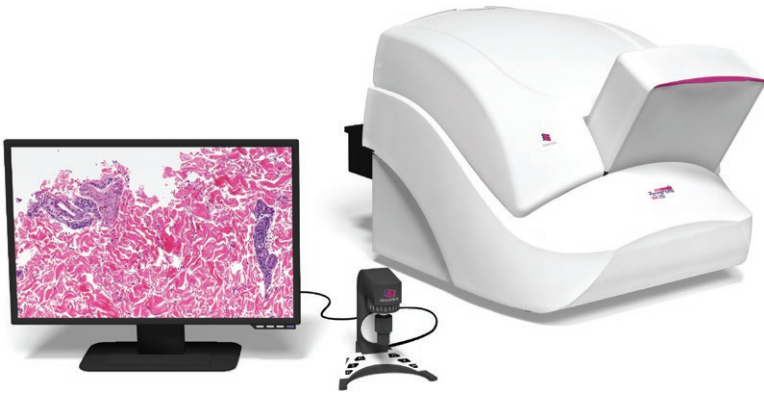
Pannoramic 1000

When speed is your need. Free up your laboratory's resources with the new Pannoramic 1000 – the high-throughput whole-slide scanning solution.

- Largest-capacity, whole-slide scanner on the market: 1000 standard-width slides

- Can scan 15x15 mm slide area in 30 seconds. (40x resolution, 0.25 µm/pixel, single layer)[1]

- Touch-enabled, easy-to-use software interface

- Double-width slide capacity (optional)

- Flexible Priority/STAT slide position allocation

- Parallel operation: slide loading and preview in parallel with scanning

- Three individual objectives exchangeable automatically during scanning

- Multilayer (Z-stack) and Extended Focus scanning (optional)

- 1D and 2D barcode reading and parsing

- Automated tissue detection and coverslip detection

Pannoramic 250 FLASH III

3DHISTECH Pannoramic 250 Flash III, an all-in-one solution for digital pathology research and storage. Enjoy increased speed and efficiency in routine digital pathology with 60 slides per hour!

- 250-slide capacity and continuous loading with vertical slide arrangement

- Award-winning, exceptional image quality for both brightfield and up to nine fluorescent filter positions available for single and multiple band cubes with advanced FISH scanning technique

- Pulsed Xenon FLASH light source for high-speed brightfield scanning

- Up to 90x brightfield and 60x

- fluorescent magnification by default

- Darkfield preview for easy localization of fluorescent samples

- Brightfield slide scanning in one minute at 40x resolution

- Motorized objective and camera changer

- Automatic slide loading, previewing, barcode reading and scanning

- All-around system for high-volume slide scanning

Pannoramic SCAN II

Save time in routine pathology and enjoy both brightfield and fluorescent scanning solution in the same machine

- 150-slide capacity and continuous loading with vertical slide arrangement

- Award-winning, exceptional image quality for both brightfield and up to nine fluorescent filter positions available for single and multiple band cubes with advanced FISH scanning technique

- Up to 90x brightfield and fluorescent magnification by default

- Motorized objective changer

- One high-quality monochrome camera is used for both brightfield and fluorescence with unique three-channel brightfield light source

- Automatic slide loading, previewing, barcode reading and scanning

- All-around system for high-volume slide scanning

Pannoramic MIDI II

A versatile, low-volume digital pathology solution for smaller labs.

- Twelve-slide capacity and continuous loading with horizontal slide arrangement

- Brightfield and up to nine fluorescent filter positions available for single and multiple band cubes

- Up to 90x brightfield and fluorescent magnification

- Motorized objective changer

- One high-quality monochrome camera is used for both brightfield and fluorescence with unique three-channel brightfield light source

- Automatic slide loading, previewing, barcode reading and scanning

BF+FL IN ONE

Continuous Loading

Pannoramic DESK II

An excellent choice for teleconsultation and remote section scanning.

- Double-wide slide capacity

- Brightfield only scanning

- 40x magnification by default, up to 70X

- Manual slide loading, automatic previewing, barcode reading and scanning

- Small footprint

BF

Small Footprint

Teleconsultation

Digital slide server solution

- Web-based slide and case database with fast search
- Teleconsultation with CaseViewer
- Easy expansion by adding new storage
- Slide access through the free CaseViewer, the free InstantViewer, the free iPad Viewer, or the free Mac Viewer
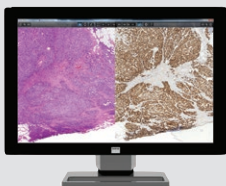- MS Network, HTTP and HTTPS accessibility

SlideDriver

- Microscope-like navigation for digital slides
- Useable with CaseViewer
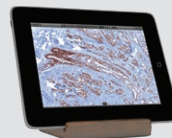
InstantViewer

- New, platform-independent web browser based slide viewer application
- Supported platforms: Windows 10, Mac OSX, iOS, LINUX, Android

High-resolution monitor

- 30'' Barco Coronis Fusion 4MP medical display
- Built-in calibration for optimal image quality, consistency and color accuracy over time
- Luminance uniformity technology provides uniform brightness levels across the entire screen, from center to corner
- Extended dynamic range presents a very wide gamut with optimum accuracy
- Backlight output stabilization for continuous LCD backlight stability, resulting in long-term image consistency
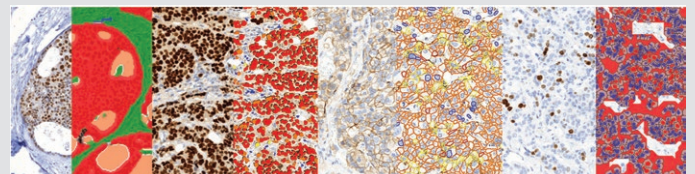
Digital IHC: QuantCenter

- PatternQuant: trainable tissue segmentation (cancer, connective tissue recognition)
- Dedicated IHC quantification software for cancer research
- (MembraneQuant + NuclearQuant)
- Research applications: HER2, EGFR, Ki67, p53, ER, PR

Pannoramic digital pathology scanners

	Technical Specifications				
	Pannoramic DESK II	**Pannoramic MIDI II**	**Pannoramic SCAN II**	**Pannoramic 250 FLASH III**	**Pannoramic 1000**
Slide loading capacity	1	12	150 or continuous loading	250 or continuous loading	1000
Double-width slide compatible	Yes	No	No	No	Yes
Objective type	20x (NA 0.8) or 40x (NA 0.95)	20x (NA 0.8) and 40x (NA 0.95)	20x (NA 0.8) and 40x (NA 0.95)	20x (NA 0.8) and 40x (NA 0.95)	
Brightfield scanning technology	5 MP 12-bit camera with RGB illumination (3-chip equivalent)	5 MP 12-bit or 4.2 MP 16-bit camera with RGB illumination (3-chip equivalent)		12 MP 12-bit camera with Xenon Flash illumination	
Optical magnification	58x	52x and 110x / 31x and 62x		41x/82x	
Pixel resolution (μm/pixel)	0.172	0.172 and 0.087 / 0.325 and 0.162		0.242 / 0.121	
Highest brightfield scanning speed*	6 min 30 sec	3 min 23 sec	2 min 30 sec	35 Sec (20x) / 1 Min 35 Sec (40X)	30 Sec (20x or 40x)
Average BF file size (native resolution)	2.6 GB (20x) / 7.9 GB (40x)	2.6 GB (20x) / 7.9 GB (40x)	1.2 GB (20x) / 3.7 GB (40x)	1.25 GB (20x) / 4.5 GB (40x)	
Highest throughput/hour	--	15	20	60	72
Fluorescence scanning technology	--	4.2 MP 16-bit camera with wideband / 6-channel LED		Additional 4.2 MP 16-bit camera with 6-channel LED	--
Highest fluorescence scanning speed**	--	6 min @ 31x 22 min @ 62x		5 min @ 31x 15 min @ 62x	--
Dimensions (W x D x H, cm)	38 x 31 x 25	70 x 50 x 50	74 x 53 x 45	68 x 69 x 55	154 x 100 x 91
Weight (kg)	12	23	26	46	270

* 15 x 15 mm area
** 10x10 mm area, 3 filters, 20 ms exposure

A fresh approach for frozen sections

Combine a 3DHISTECH MacroStation, Pannoramic Desk scanner and CaseCenter software for a complete solution for digital frozen sections.

MacroStation

3DHISTECH MacroStation – easy-to-use, manual grossing table with image recording system. Designed for use with digital slides, the MacroStation records images, helps you mark the specimen and can be connected to CaseCenter for a seamless case data storage solution.

- Lightweight design, so it does not requires any additional work for its installation and daily use.

- Built-in light source and zoom functions to ensure high-quality gross images

- Acid-proof stainless steel for the easy cleaning

- WIth CaseCenter license and server, images can be uploaded and used as regular whole slide images for annotation, sharing or teleconsultations
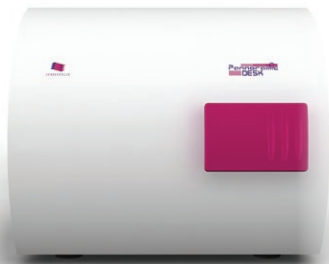
Pannoramic DESK II scanner

An excellent choice for teleconsultation and remote section scanning!

- Double-wide slide capacity

- Brightfield only scanning

- 40x magnification by default

- Manual slide loading, automatic previewing, barcode reading and scanning

- Small footprint

CaseCenter – control your digital slides

CaseCenter is a full featured digital slide management software. Its flexible structure can be adapted to various fields, including research applications, teleconsultation and education. Integration with existing medical information systems is also possible.

- Digital slide management with flexible folder and case structure

- Use barcodes to organize your digital slides, macro images and project files easily

- Multiple user levels for different access to information

Tissue microarrayers

Tissue microarrays are revolutionizing high-throughput processing.

Tissue Microarraying (TMA) allows laboratories to condense hundreds of samples into a single block or slide. Save time, reagents, and storage space while achieving more standardized laboratory conditions.

- Computer controlled
- Four core sizes: 0.6, 1, 1.5, 2 mm
- More than 400 samples in a single block
- Donor block imaging

- Barcode reading
- Digital slide use
- PCR extraction
- MicroSoft® Excel® export

TMA Master + Pannoramic Scanners: Discover new levels of efficiency and consistency with a complete 3DHISTECH solution
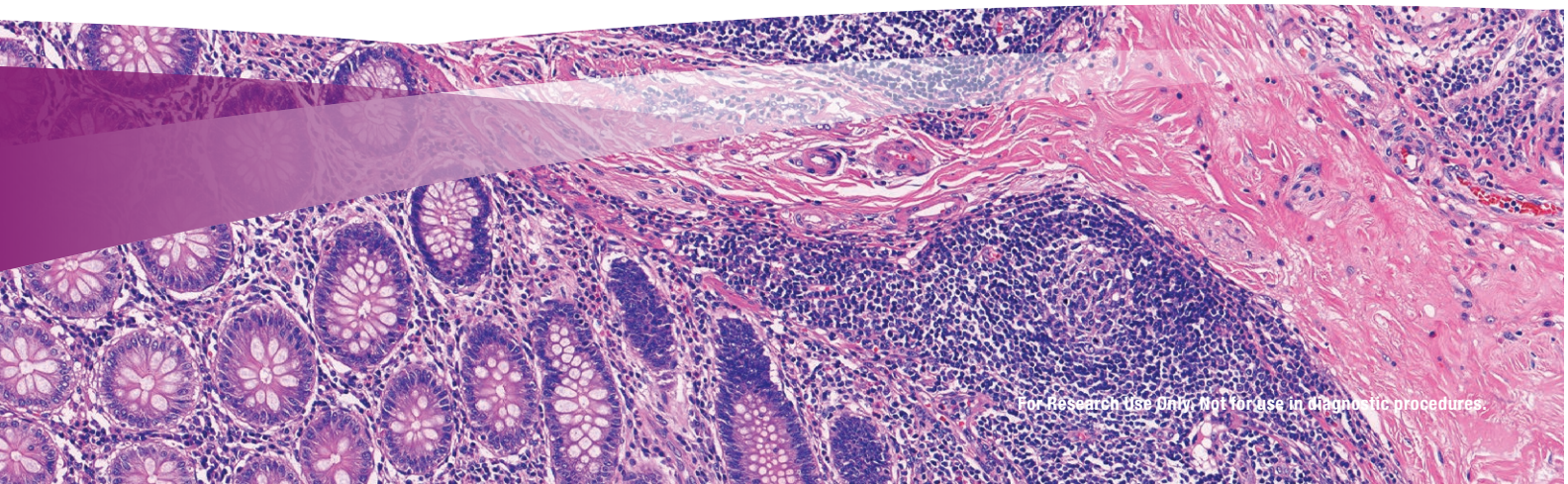
TMA Grand Master

- High-capacity workflow with 72 blocks (60 donor and 12 recipient) at the same time

- High-speed microarray – maximum of twelve seconds per core

- Simultaneous loading, imaging, drilling and punching
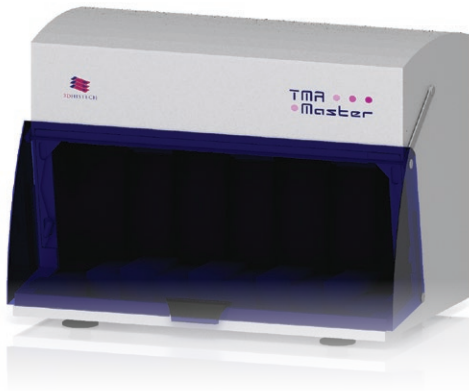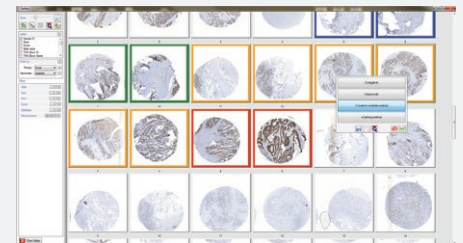

TMA Master II

- Upgraded hardware

- High TMA quality

- Five-block capacity

- Fully automated control

- Small footprint


TMA Control software

An easy-to-use solution for TMA block design and creation.

- Project based workflow

- Recipient block layout designer

- Ability to import donor block ID and additional sample data from Excel file

- Barcode-based donor block identification

- Automated digital slide search from CaseCenter or local drive

- Automated digital slide overlay with TMA markers from viewer

- Ability to place tissue cores in a clean PCR tube.

- Customizable export tool: export TMA data with donor block images

TMA module

- For high-throughput tissue microarray analysis

- Project based: multi-user, multi-slide

- Flexible gallery

- Works with Excel database created by the TMA Master or the TMA Grand Master
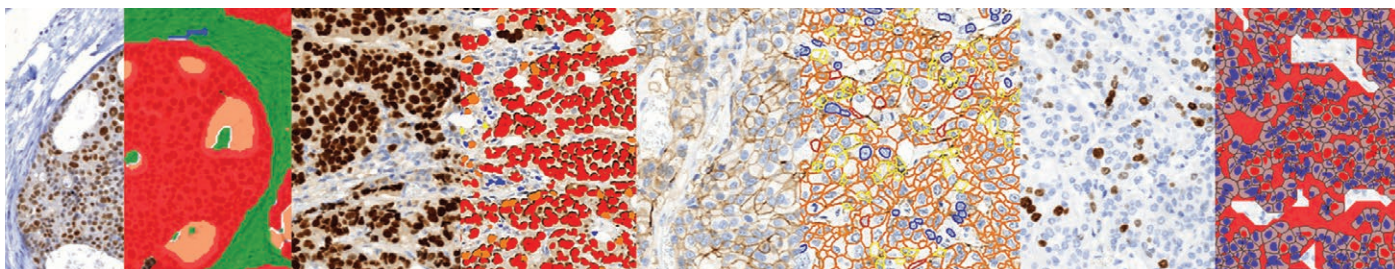
Digital image analysis

QuantCenter is a powerful, automatic image analysis platform designed for digital whole slide quantification process.

Designed to fit seamlessly in the conventional microscopic investigation process, QuantCenter includes algorithms from tissue classification to cell-based FISH analysis that can be freely combined. It offers computer-aided image analysis allowing accurate, high-quality analytical results to be generated quickly.

The QuantCenter framework allows the connection of a variety of image analysis applications to generate a unique image analysis scenario. By using this feature, as the first step tissue classification modules can be applied to identify the region of interest (cancer regions), then a specific cell-based quantification module can detect the cancer cells and measure their morphometrical and intensity features.

The defined profiles can be saved and used for further analyisis. Applying batch analysis mode multiple digital slides can examine in the background and save you time. With the data visualization options, results can be viewed in a scatterplot, histogram, or pie chart. All of the measurement results can be exported into an Excel™ file.

Molecular pathology

FISHQuant
- A powerful cancer and cytogenetic application dedicated to quantify FISH (Fluorescence In Sytu Hybridization) signals on tissue samples of solid tumor diseases like: breast and lung cancer, sarcomas, and lymphomas.

- This module is suitable for examination of hematologycal tumors, FISHQuant classifies the interphase and metaphase cells individually for a comprehensive evaluation.
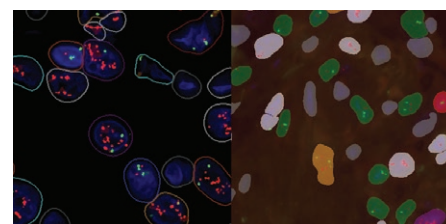

CISHQuant
- Quantify CISH (Chromogenic In Sytu Hybridization) stained samples. The algorithm can be calibrated to the stain protocol and quality by using an integrated color setting tool. This module is suitable for examining gene amplification, deletion and chromosome aberration.
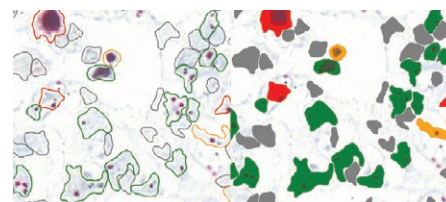
CISH-RNAQuant
- Detects RNA virus in virus-infected cell nuclei (Epstein-Barr vírus, HPV, HHV8).

- The application contains a color adjustment module which can be calibrated to the applied stain protocol and quality.
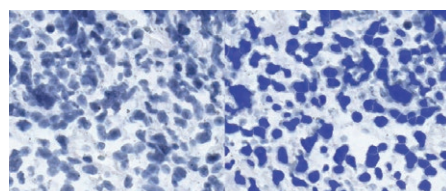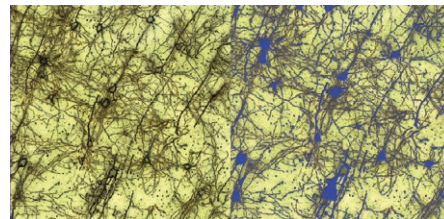
Histopathology

Tissue classification

HistoQuant
- A histological segmentation module which identifies tissue elements based on the color and intensity of the image pixels.

- This module could be run as a standalone application or could be combined with any of our IHC quantification modules for brightfield or fluorescence analysis.

PatternQuant
- A trainable pattern recognition module for tissue classification, tissue pre-segmentation and identification of different tissue structures.

- The machine-learning-based algorithm is able to classify different tissue types based on their texture pattern and color features.
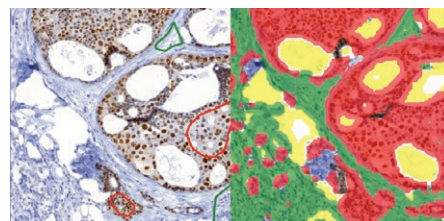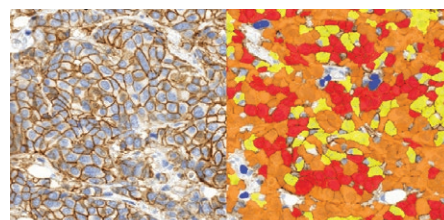

IHC quantification

NuclearQuant
- A cell nuclei detection module designed for cell nuclei detection and quantification of IHC stained samples. The algorithm can be calibrated to the stain quality (local laboratory protocol or different stainer) by using an integrated color setting tool.
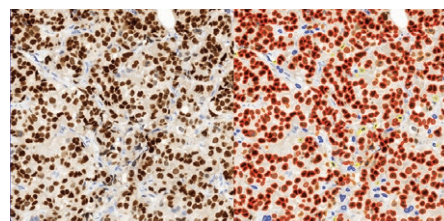
MembraneQuant
- A membrane detection software application can be used for IHC stained histological sample quantification. The algorithm can be calibrated to the stain quality (local laboratory protocol or different stainer) by using an integrated color setting tool.

CellQuant
- A cell detection application which is optimal for several IHC quantification.

- The application is adequate for cell nuclei, cytoplasmatic and membrane marker quantification. The software reports results based on dedicated scores and positivity ranges of cell nuclei, cytoplasm or membrane signals.
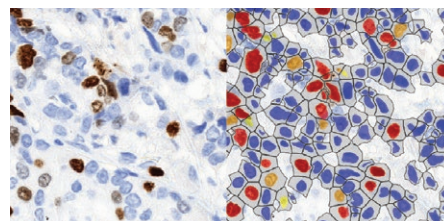
DensitoQuant
- An easy to use, fast and accurate, stain-intensity-based IHC quantification tool.

- The application identifies the positive stain, based on an automatic color separation method through which individual positive pixels are counted and classified based on intensity and threshold ranges.
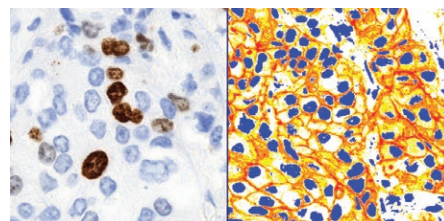
Research pathology

3DHISTECH pioneered fluorescent whole-slide imaging and, thanks to a continuous drive for improvement, continues to help you produce exceptional-quality fluorescent digital slides.
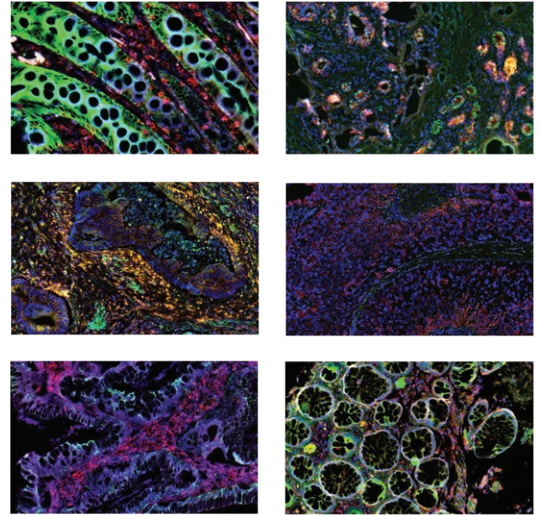
Fluorescent scanning

With up to 16-bit image depth, extended focus and Z-stack, it is not surprising the Pannoramic is a top choice for quality-conscious customers.

Flexibility

Fluorescent whole slide imaging requires a greater degree of flexibility than brightfield scanning. Only area scanning used in Pannoramic digital slide scanners is able to fulfill these requirements. For instance, you can always have a live view to make sure the scanned image is good quality. The digital slide scanners from 3DHISTECH offer a large number of setup options and feature set on the market thus providing flexibility of samples.

- High-speed fluorescent scanner

- High-quality (16 bit) fluorescent scanning with Z-stack for most detailed imaging

- Whole-slide scanning with extended focus scan mode for the perfect final image in compact file size

- Up to nine fluorescent filter positions available for single and multiple band cubes for scanning

- Fluorescent background image compensation for the clear, precise images, even in individual Z-layers

- Sharpening option for a more luminous image

FISH quantification

- Cancer and cytogenetic application

- FISH quantification on tissue samples of solid tumor diseases, like: breast cancer, lung cancer, sarcoma symptoms, lymphomas

- In case of hematalogy type tumors, 3DHISTECH's FISHQuant application is scoring the interphase and metaphase cells individually for an even more comprehensive evaluation

- Autofluorescence filtering for FISH (Fluorescence in situ hybridization) samples. As part of QuantCenter, FISHQuant provides a user-friendly, standardized interface and easy navigation bar

- Renewed algorithm for a more sensitive segmentation of nuclei and spots

- Brand new data handling

- Benefit from the fast and safe data processing, easy data visualitzation and precise data filtering

Whole-slide confocal microscopy and 3D histology

Pannoramic MIDI Confocal

Fully automated, whole-slide scanning with high light efficiency, minimal bleaching and very fast scanning speeds. This revolutionary system offers brightfield, confocal and widefield fluorescent imaging in a single instrument.

- Easy scanning for high productivity: automatic sample localization, automatic exposure, multislide mode

- Unique technologies for increased speed: darkfield and fluorescent preview – effectively skipping empty areas, a Lumencor LED light engine for excellent illumination, Scientific sCMOS camera – high sensitivity with low noise for short exposure times, fully automatic water immersion system for high NA objective

- Anti-bleaching solutions: structured illumination for collecting every usuable light from the sample, high brightness confocal mode for weak signals, hardware light triggering to avoid unnecessary sample illumination, reducable light intensity for sensitive samples

- Advanced options: customizable area selection, adjustable scanning and image processing options.
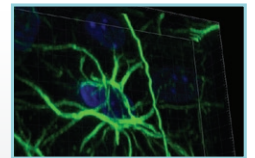
3DView

3DView's 3D reconstruction of fluorescent images gives an amazing view of the whole specimen.

Microscope slides allow you to see only one section of reality. Even with Z-stack or Extended focus, you are still constrained to a single section.

3DHISTECH offers you a tool that can reconstruct the original tissue from its serial sections. Unlike an MRI, the 3DView software lets you look into microscopic details while also showing you the tissue in its original form.

	Technical specifications		
	Laser scanning confocal	Spinning disc	Aperture correlation Pannoramic Confocal
Scan speed	Slow, typically 2-3 FOV per second with 1024 x 1024 resolution	Highly limited light intensity, noisy images	1 x 1 mm area, four minutes with 40x objective
Bleaching and phototoxicity	High	Medium	Low
Light source	Lasers, 100-200 mW	Lasers, 100-200 mW	LED, 200-1000 mW
Light efficiency	• 100% illumination • 1-4% emission • 1-4% overall efficiency	• 70% illumination • 3-4% emission • 2-3% overall efficiency	• 50% illumination • Nearly 100% emission • 50% overall efficiency
Confocality	Continously adjustable, unlimited tissue thickness	Fixed pinhole size, limited tissue thickness	Adjustable in three steps, unlimited tissue thickness
Running costs	Expensive lasers with 1000-2000 hour lifespan	Expensive lasers with 1000-2000 hour lifespan	Low cost LED lifespan is over 15,000 hours

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