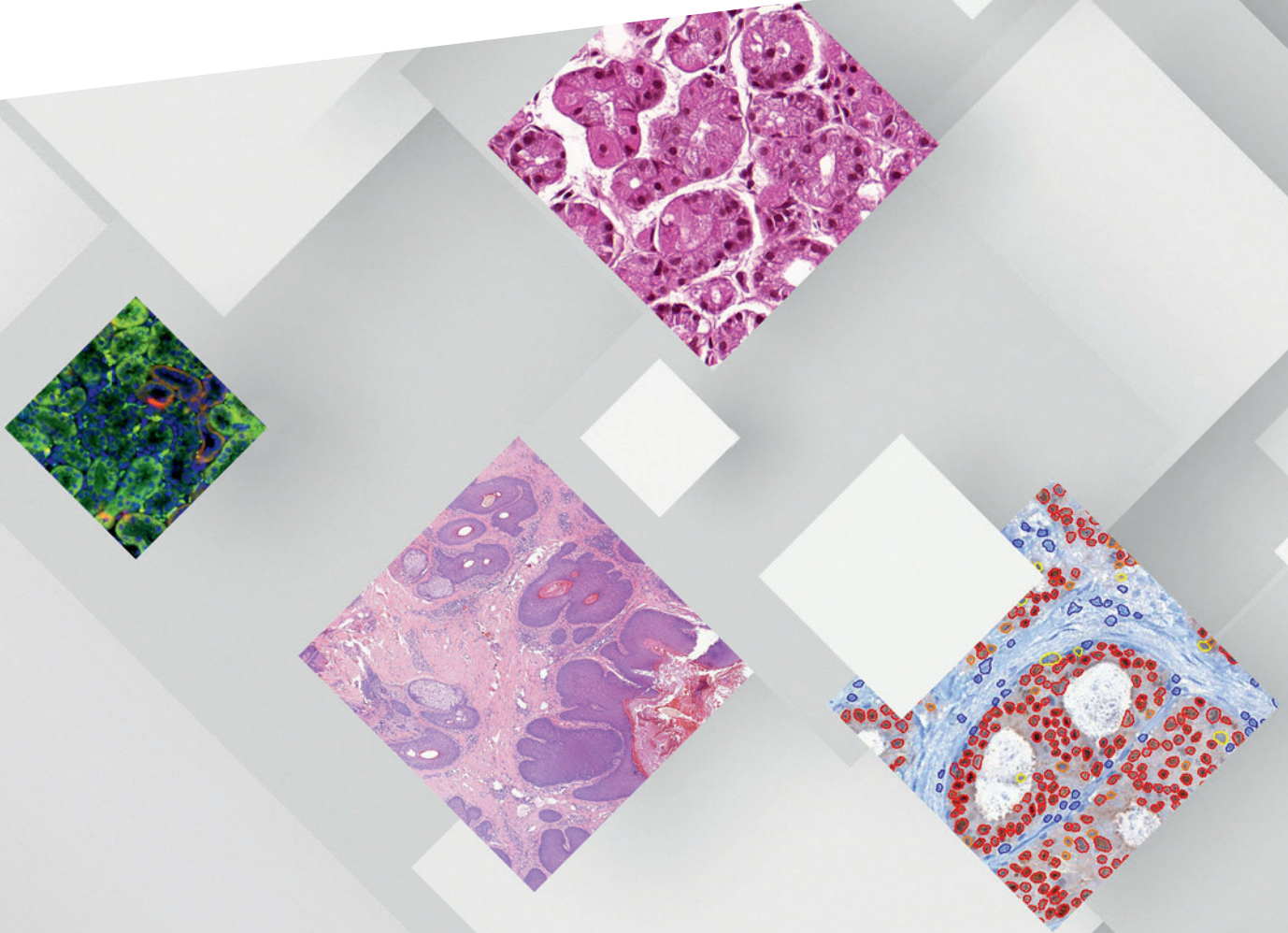3DHISTECH

sysmex

Digital pathology – free of space and time

Our solutions for research and routine

Digital concepts made to measure for you

Demographic and economic developments together with rapid advances in medicine demand that histopathological research and routine adapt to meet the new requirements. This is where digital technology opens up new ways of doing things, whether that be communication free of space and time restrictions, improved workflows or intelligent image analysis.

We work with you to find the best solution to make your laboratory fit for the future.
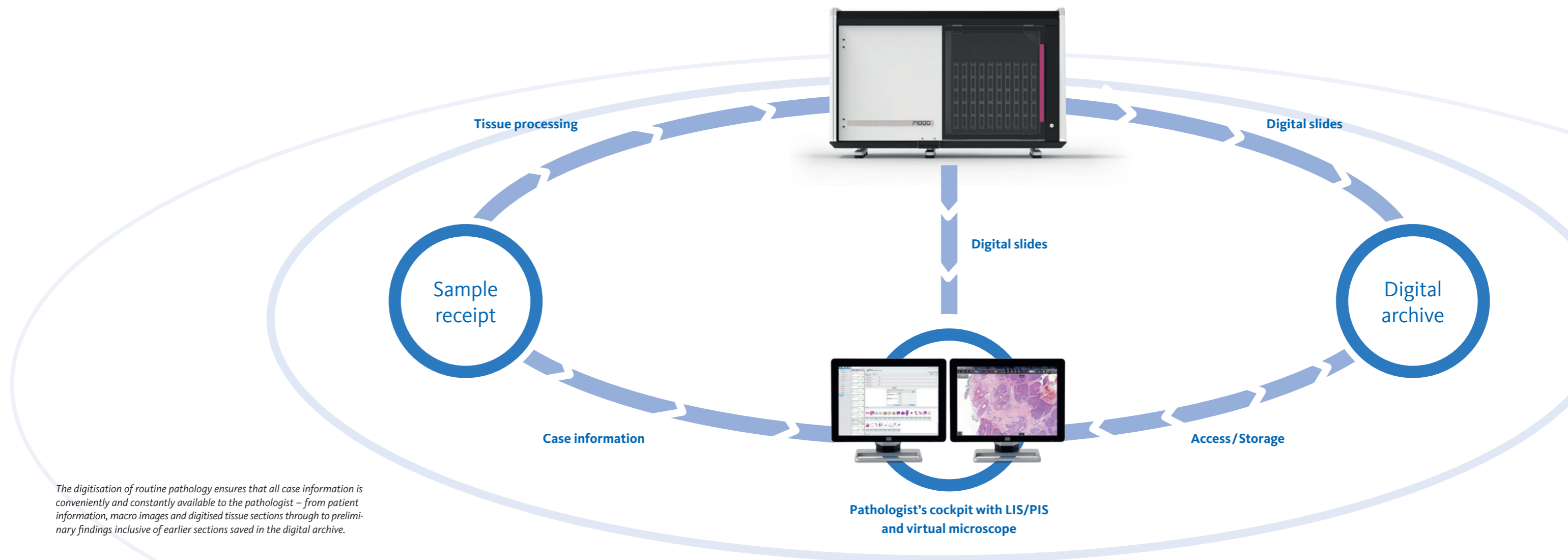
Sysmex turns digitalisation in routine pathology into reality

Digital technology is reshaping the pathologist's workplace. Having all patient information available in digital form allows the clinician to conveniently make a diagnosis wherever he or she happens to be, and facilitates efficient cross-site communication. Standardised processes, from sample receipt all the way through to archiving, guarantee the traceability of patient samples and simplify quality management. Computer-based image analysis supports the increasingly complex process of diagnosis.

The crucial step in the workflow process is the virtualisation of the slide. Enjoy the high-performance scanning speed, excellent image quality and future-proof integration into your lab workflow and IT environment that your scanner provides.

Sysmex – your partner in the digitalisation of your pathology lab

- We come to you. We prepare a tailor-made offer for you based on our analysis of your workflow.

- We plan. Our transparent project planning and coordination ensure you are involved in every step of the way.

- We realise. We install and integrate scanner hardware and IT components into your IT structure.

- We are there for you. Our application and service teams train your staff and provide rapid support for you throughout Europe.

Tissue processing

Digital slides

Digital slides

Sample receipt

Digital archive

Case information

Access / Storage

Pathologist's cockpit with LIS/PIS and virtual microscope

The digitisation of routine pathology ensures that all case information is conveniently and constantly available to the pathologist – from patient information, macro images and digitised tissue sections through to preliminary findings inclusive of earlier sections saved in the digital archive.

Digital scanners

Right at the heart of the digitalisation process is the scanner's ability to generate a virtual representation of the tissue section, opening up new opportunities well beyond the capabilities of traditional microscopy. Without loss of quality, our digital scanners provide high-resolution tissue sections as a solid scan for both fluorescence (FL) and bright-field (BF). As an aid to progressive pathological diagnosis, digital sections can be viewed and analysed over an infinitely variable range of sizes from the section as a whole all the way down to the cellular level.

Pannoramic DESK II –
our compact bright-field scanner
Our flexible single-slide scanner even allows double-width slides to be scanned. The horizontal feeder allows slides without a permanent covering (e.g. those with frozen sections) to be scanned.

Pannoramic MIDI II –
the multi-purpose device for low throughput
The Pannoramic MIDI II scans tissue sections in BF and FL. Thanks to its horizontal feeder, the Pannoramic MIDI II is also ideally suited for digitising sections that have been covered in a water base.

Pannoramic SCAN II –
the compact all-rounder for higher throughput
Due to its high load capacity and continuous loading option, the Pannoramic SCAN II is especially suited for laboratories with a large number of samples. Both BF and FL tissue sections can be scanned.

Pannoramic 1000 Flash IV –
highest performance for routine work
With its very high throughput, direct loading capacity from automatic covering systems and seamless integration into the laboratory's IT system, the Pannoramic 1000 Flash IV meets routine diagnostic workflow needs.
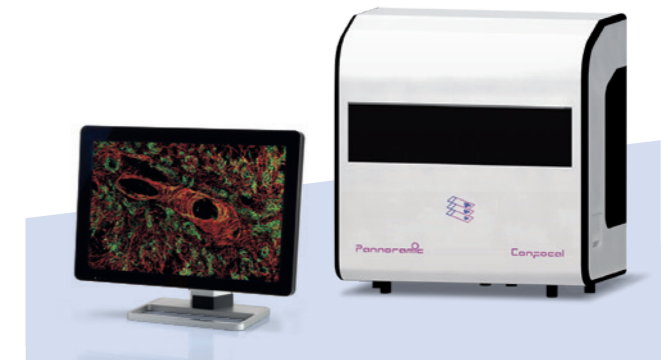
Pannoramic 250 Flash III –
flexibility with high throughput
BF and FL scanning, excellent image quality and fast scan speed make the 250 Pannoramic Flash III a versatile high-end solution.

Pannoramic Confocal –
excellent images in 3D
The first confocal solid scanner permits a particularly detailed depiction of the tissue section thanks to its novel scan technology. In addition, the integrated 3DView software lets you display preparations in three dimensions and view them in detail.

	Pannoramic DESK II	Pannoramic MIDI II	Pannoramic SCAN II	Pannoramic 250 Flash III	Pannoramic 1000 Flash IV	Pannoramic Confocal
Capacity	1 slide	12 slides	150 slides	250 slides	1,000 slides	12 slides
Scan mode	BF	BF/Optionally 9-channel FL			BF	BF and confocal 4-channel FL
Optical magnification in BF mode	30 to 116 times with ZEISS apochromat 20 x / 0.8 or 40 x / 0.95 objectives					
Application areas	■ Frozen section diagnostics ■ Second medical opinion ■ Digitisation of large area specimens	■ Research laboratory with BF and FL applications ■ Molecular pathological analyses (FISH, CISH)	■ Research and diagnostics ■ Up to 150 sections in automatic mode	■ High-performance scanner for routine diagnostics ■ Continuous loading	■ High-performance scanner for routine diagnostics ■ Continuous loading ■ Digitisation of large area specimens	■ High-end fluorescent slide-scanner for research area ■ Scanning of preparations with thickness up to 100 µm

Digital tissue microarrays (TMA)

Our digital TMA workflow allows the efficient and precise creation of TMA blocks with up to several hundred tissue punches each.

- Quality assurance by means of barcode recognition
- Sample tracking and data export using Microsoft Excel®
- Standardised, precise workflow
- Large savings potential in the case of reagents

Selected specifications

- Choice of punch diameter (0.6 mm, 1.0 mm, 1.5 mm or 2.0 mm)
- Digital slide overlay, allowing TMA markers to be transferred quickly and precisely from the stained frozen section to the donor block
- Fully automatic sampling for PCR analyses without punch contamination

TMA Master II –
the compact tissue microarray device
The semi-automatic TMA Master II is exceptionally well-suited for smaller laboratories due to its very small footprint and offers excellent precision when preparing TMA blocks thanks to its software-controlled user interface.
- Up to 5 paraffin blocks (variable combination)
- Up to 558 punches per paraffin block
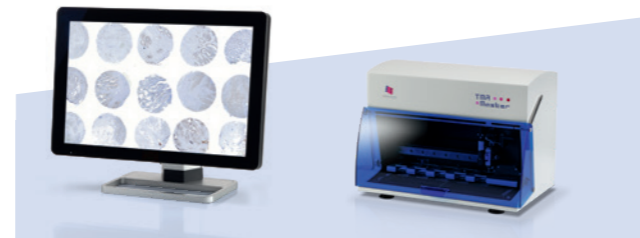
TMA Grand Master –
### the high-performance tissue microarray device
The fully automatic TMA Grand Master is an asset for laboratories with high throughput. Thanks to its ability to transfer up to 280 punches per hour and the integrated workflow achieved by means of parallel transfers, punches, drills and image capture, the Grand Master is the fastest of its kind.
- Up to 12 recipients and 60 donor blocks
- Up to 558 punches per paraffin block

TMA Module –
for efficient workflow analysis
- For processing virtual TMA sections
- Punch data import from TMA software Excel table
- Separation of individual TMA spots for evaluation purposes
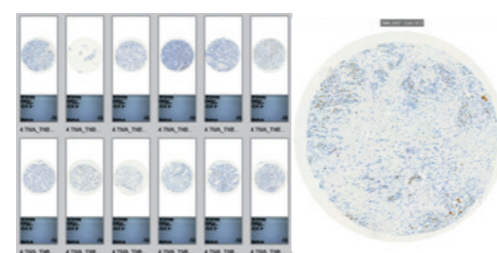
Visualisation and data management

In order to make the workflow and diagnosis of digitised tissue sections easier for you, we offer numerous powerful software modules alongside our slide scanners and TMA devices, thereby allowing you to adapt the complete range of functions (comprising every step of the digital workflow) precisely to your requirements.

- Speedy and powerful viewer software aids viewing and diagnosis
- Stores and organises digitised slides
- Specialist analysis methods such as quantification of IHC and fluorescent stains, and 3D reconstruction of section groupings

Digitised tissue sections can also be shared via the internet, enabling collaboration with other experts regardless of time and place.

CaseViewer –
the virtual microscope
CaseViewer is the intuitive, user-friendly software used to edit and view digital tissue sections on screen – the admission card to virtual pathology.

- Simple and speedy access to digital slides
- Fluid zooming and screen positioning of digitised sections
- Up to nine sections can be viewed simultaneously
- Annotate and measure distances and surfaces
- Adjust brightness, contrast and colour intensity
- Import and export functions for other image formats
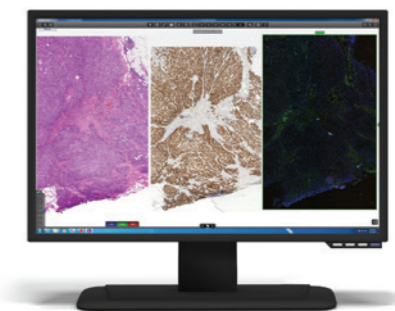
CaseCenter –
the database for your tissue sections
CaseCenter is the web-based database for your digitised tissue sections. CaseCenter gives you the facility to store all of your cases and to access them at any time via the internet. This creates independence and frees you from space and time.
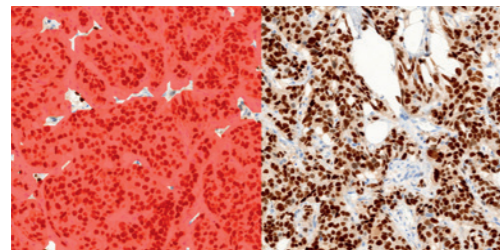
- Database access via web browser or CaseViewer
- Intelligent management of user permissions
- Slides can be automatically archived and sorted using barcodes
- Exchange and teleconsultation function
- HL7-compatible for integration into HIS/LIS
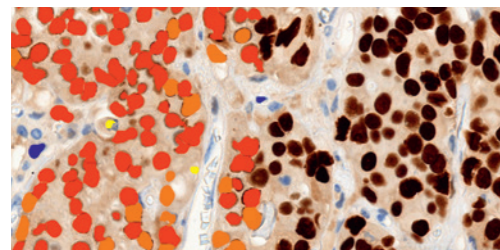
Quantification software

A key benefit of digital slides is the option to carry out computer-aided image analyses of the entire tissue section. The results calculated with the software algorithms are objective, reliable and reproducible, thereby supporting the increasingly complex process of diagnosis.

QuantCenter is a powerful software package with image analysis tools for the quantification of tissue structures, IHC stains, CISH samples and FISH samples. The modules are accessed from CaseViewer and can be combined in a range of scenarios to facilitate efficient image analysis.

HistoQuant: histological image analysis tool
- Separation of up to 10 different levels; can be used for all stains
- Measures morphological and densitometric characteristics

PatternQuant: structure-based tissue segmentation and classification
- Identification and classification of different tissue structures
- Percentage analysis of specific tissue classes
- Pre-segmentation of tissue for further quantification

DensitoQuant: measures immunostain intensity
- For rapid analysis of TMA slides
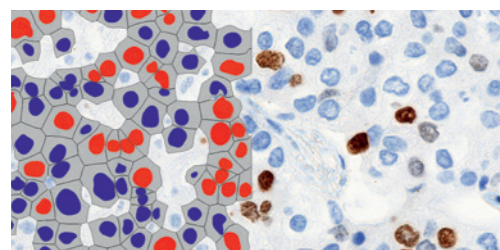- Measures stain density of an entire section

NuclearQuant: immunohistochemical nucleus staining
- Detection of cell nuclei and measurement of colour intensity in the chromogenic channel by using colour deconvolution
- Subdivision of cell nuclei into negative to highly positive
- IVD-certified for oestrogen and progesterone quantification

CISHQuant: proof of chromogenic staining
- Identifies CISH signals using spot detection function (colour intensity, size, contrast)
- CISH-RNA to prove viral RNA in infected cell nucleus
- Simultaneous assessment of quantitative and qualitative genetic aberrations
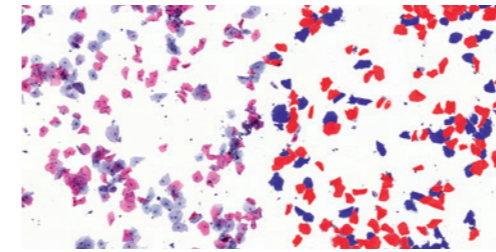

MembraneQuant: immunohistochemical membrane staining
- Identification of cell membrane through colour deconvolution and measurement of chromogenic channel's colour intensity
- Subdivision of detected membranes into negative to highly positive
- IVD-certified for HER2/neu quantification

FISHQuant: quantification of FISH stains
- Automated specification of numerical aberrations in stained genes, as well as subdivision of nuclei into 'normal', 'abnormal' and 'artefact'
- Sample type and desired FL channels can be selected
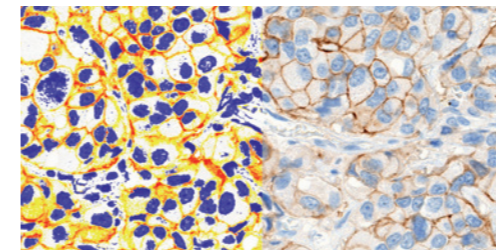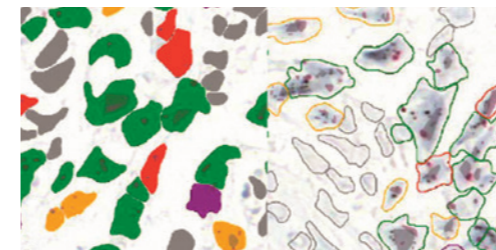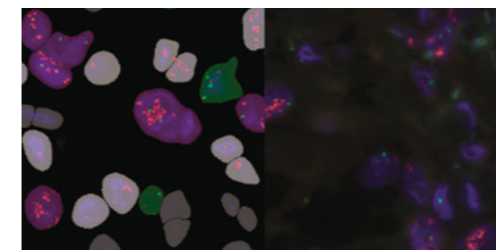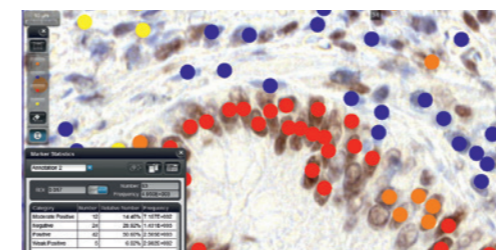- IVD-certified for FISH quantification

CellQuant: immunohistochemical counting of cell nuclei, cytoplasm and membranes
- For quantification of KI-67 IHC stains
- Can be used for both BF and FL stains
- Multi-level protein expression measurement

MarkerCount: marking and counting cells
- Manual quantification with statistical evaluation of tissue structures and cells
- Quick, flexible and simple to use
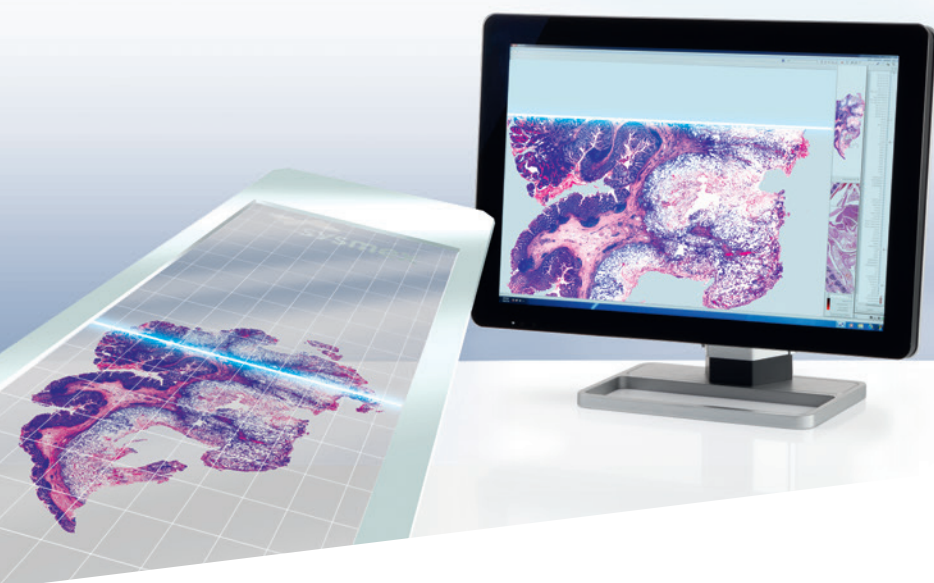
Selected specifications of the Pannoramic digital scanners

	Pannoramic DESK II	Pannoramic MIDI	Pannoramic SCAN	Pannoramic 250 Flash III	Pannoramic 1000 Flash IV	Pannoramic Confocal
Capacity	1 slide	12 slides	150 slides	250 slides	1,000 slides	12 slides
Scan mode	BF	BF / optional 9-channel-FL			BF	BF and confocal 4-channel-FL
Optical magnification in BF mode	30 x to 116 x					
Unique features	■ Comparable speed to live microscopes ■ Compact ■ Best price/ performance ratio	■ High-performance scanner for diagnostic routine ■ Continuous loading				High-resolution 3D construction of tissue structures
Areas of application	■ Frozen section analysis ■ Physicians' second opinions	■ Research and diagnostics ■ Research laboratories with BF- and FL-applications: ■ Molecular pathological analyses (FISH, CISH) ■ IHC ■ (Multiplex) Immunofluorescence detection ■ Automatic mode			■ For diagnostics only ■ Compatibility with stainer racks ■ Oil* and water immersion ■ Big slide scanning capability	■ High-end FL slide scanner for research (neuroscience and molecular pathology) ■ Scanning of samples with up to 100 µm thickness

*from 2019