Digital histology solutions from 3DHI STECH
Digital histology solutions from 3DHISTECH

**PRODUCT PORTFOLIO**

**Digital histology software applications**

- Pannoramic Viewer: the digital microscope, starting point for the applications

**Options**
- Slide Server: online and offline teleconferencing software
- HistoQuant: general purpose quantification software
- NuclearQuant: automated quantification tool for IHC nuclear stains
- MembraneQuant: automated quantification tool for IHC membrane stains
- FISHQuant: automated quantification tool for FISH samples
- ImmunoScreener: project based IHC stained sample evaluation software
- TMA: project based, high throughput tissue microarray evaluation tool
- E-School: software package for teaching and managing exams
- 3D: three-dimensional reconstruction software

**Database programs**
- DB: LAN-based case management software
- Toxicopath-LIMS: toxicopathology research LIMS

**Hardware**

**Slide scanners**
- **Pannoramic 250**: walk away 250 slide scanner with camera & objective changer and fluorescence option
- **Pannoramic SCAN**: walk away 150 slide scanner with fluorescence option
- **Pannoramic MIDI**: walk away 12 slide scanner with fluorescence option
- **Pannoramic DESK**: manual scanner
SLIDE SCANNERS

**Pannoramic 250**
The next generation digital slide scanner with motorized camera and objective changer. This high speed digital slide scanner can scan up to 250 slides in one run and is able to scan in 9 fluorescent channels.  
*The all-in-one scanning solution for high throughput brightfield and fluorescent scanning.*

**Pannoramic SCAN**
Fully automated, high resolution digital slide scanner being able to digitize 150 histological, cytological and fluorescent slides in high speed.  
*Perfect for high throughput scanning in brightfield and fluorescence.*

**Pannoramic MIDI**
Fully automated, high resolution and high speed digital slide scanner that is able to digitize up to 12 brightfield and fluorescent slides in one run.  
*Perfect combination of functionality and affordability.*

**Pannoramic DESK**
Fast, high resolution and compact sized personal digital slide scanner digitizing one slide in one run at transmitted light.  
*Perfect for small laboratories and for teleconsultation purposes.*
Pannoramic Viewer
Integrated workplace of the pathologist covering and supporting all diagnostic duties. The user can view, annotate, measure, document and consult the slides digitized by Pannoramic digital slide scanners. At the same time up to 10 samples can be viewed in order to compare them to each other.

Storing & Sharing
Working with digital slides is easy because the sample information is seceded from the glass slide. Managing digital information is much easier and faster than using the glass slide. Why send the slide by post and wait for days for the answer when you can share your samples with anybody located anywhere in a matter of seconds? The digital slide can be made available for anybody by only pressing a button.

3DHISTECH Slide Server
The Slide Server from 3DHISTECH offers teleconsultation of virtual slides over the Internet on-line or off-line. In on-line (synchronized) mode the participants join the teleconference at the same time. The consultation can be performed not only by passive viewing of the slides presented by the consultation leader but by traversing the complete slide conveniently in the user’s own tempo or even by taking over the leadership of the consultation. In off-line mode, the consultant and the requester do not need to be agreed about the right terming. Slides can be downloaded and annotated. A consensus report with slide image and annotated region of interests can be formulated, dispatched and stored. Digital slides can be downloaded with the consensus report and annotation on the computer of each participant.

DB
LAN-based slide and case database that is offered for free. The DB is perfectly suited for hospital environments where a large number of cases is generated every day. It is possible to scan directly into the DB so the doctors get access to their slides in minutes. The doctors can add attachments to the slides and cases, and can perform really fast searches among the slides. The DB uses standard interfaces from Pannoramic Viewer so it can be integrated in existing health care information systems.
Quantification

The other great advantage of digital slides is the standardizability. The quantification algorithms are a noteworthy aid in the pathologists’ work. The software always gives you an objective and consistent result. Although the pathologist can never be substituted with a computer the software can nevertheless provide a reliable standard that helps getting a diagnosis faster and in consistent quality.

HistoQuant
The HistoQuant module enables histologists to analyze quantitatively both tissue samples and suspensions. The module supports the counting of cell nuclei and measuring nuclei features (morpho- and densitometric). HistoQuant can be run on any kind of tissue.

NuclearQuant
The software evaluates IHC nuclear samples (ER, PR, Ki67, etc.) and classifies the cell nuclei automatically. The user can view and rescore the detections separately in the classification gallery. An easy-to-use HTML reporting function and batch mode processing is available, too.

MembraneQuant
The software evaluates IHC membrane samples (HER2, EGFR, etc.) and classifies the membranes automatically while also determining the H-score. The user can view and rescore the detections separately in the classification gallery. An easy-to-use HTML reporting function and batch mode processing is available, too.

FISHQuant
The software evaluates FISH samples and classifies the cell nuclei automatically. The user can select from multiple FISH probes and new ones can be added. Separate viewing and rescoring of the detections is possible in the classification gallery. An easy-to-use HTML reporting function and batch mode processing is available, too.
IHC and TMA workflow tools

Immunohistochemistry plays an ever growing role in today’s healthcare. Effective cancer therapy can be achieved by this advanced diagnosis technique. Together with tissue microarrays, it poses a challenge that cannot be dealt effectively with the traditional microscopy. Virtual microscopy clearly shows its strengths here, too.

ImmunoScreener

This project based software application offers an efficient way to compare the same areas of differently stained samples. By using a grid based segmentation system and an intuitive gallery evaluation is easy and fast. Different scoring schemes can be applied for each stain. The software interacts with the quantification applications in order to provide semi-automated evaluation. Moreover, all the images and the evaluation data can be saved for statistical or publication purposes.

TMA

The TMA is a project based, high throughput software application for the evaluation of tissue microarrays. The spots are easily located and the core data is linked from an XLS database (which is automatically created by the TMA Master). Different scoring schemes (1-dimensional and 2-dimensional) can be applied to each stain. Evaluation of the spots is done manually and the results can be validated using our quantification applications. The gallery images and the evaluation data can be saved for publication and statistical purposes.

Education

The use of digital slides frees the teaching facilities from the hassle of using microscopes and samples on glass slides. The students use computers and they can see exactly what and how the teacher wants to show them. One set of digital slides is enough for an unlimited number of students and for an unlimited length of time without any degradation.

E-School

The E-School software package consists of the 3DHISTECH Slide Server and the E-School Exam Server. With the Slide Server teaching is effective and easy, the students participate in an on-line teleconsultation session where everybody sees the same slide. Chat function and taking over the leadership is possible. The
E-School Exam Server is a multi-language question and answer database which gives you the ability to conduct exams with digital slides. The software offers multiple question types and the answers can include student-selected screenshots from digital slides, too.

Other

3D
This module is a ‘computer tomograph’ of the pathologists. The 3D structure of the original sample from serial samples can be reconstructed. The picture of 3D object can be viewed as a whole or partitioned into slices. Tomographic procedures like rotation, artificial sectioning and slicing can be performed.

Toxicopath-LIMS
Toxicopath LIMS is designed for toxicopathological laboratory experiment management, data storage and reporting. It operates in multi-user environment and supports rapid entry of typical experiment data, automatic animal code generation for studies, routine work management with automatic report generation, species and organ database and stain management and basic statistical calculations.

PATHONET: DIGITAL SLIDE PORTAL

By using PathoNet, the pathologists can consult with the best specialists of a particular department over the Internet, communicating with each other the most interesting cases of the day. The portal grants access to the knowledge base of other experts existing in all parts of the world. Registration is and storage space (limited) is free for everyone.
## TECHNICAL DATA

<table>
<thead>
<tr>
<th></th>
<th>Pannoramic 250</th>
<th>Pannoramic SCAN</th>
<th>Pannoramic MIDI</th>
<th>Pannoramic DESK</th>
</tr>
</thead>
<tbody>
<tr>
<td>Size (W, H, D)</td>
<td>68 cm x 70 cm x 55 cm</td>
<td>61 cm x 90 cm x 69 cm</td>
<td>48 cm x 70 cm x 50 cm</td>
<td>27 cm x 25 cm x 30 cm</td>
</tr>
<tr>
<td>Capacity</td>
<td>250 slides (10 cassettes; 25 slides/cassette)</td>
<td>150 slides (6 cassettes; 25 slides/cassette)</td>
<td>12 slide</td>
<td>1 slide (manual load)</td>
</tr>
<tr>
<td>Fluorescence scanning</td>
<td>Yes, 9 channels; liquid light scrambler</td>
<td>Yes, 9 channels; liquid light scrambler</td>
<td>Yes, 9 channels; liquid light scrambler</td>
<td>No</td>
</tr>
</tbody>
</table>

### Scan computer (minimum specification):
Intel Core 2 Duo
2 GB RAM
500 GB HDD

### Objective:
Carl Zeiss Plan-Apochromat 20x/0.8 or
Carl Zeiss Plan-Apochromat 40x/0.95 or

### Camera adapter:
0.5, 0.63 or 1

### Camera:
AVT Stingray F146C Medical
Zeiss AxioCam MRm Rev.3.
Hitachi HV-F22CL (3 chip)

### Scanning resolution and speed (Hitachi HV-F22CL camera)

<table>
<thead>
<tr>
<th>Objective</th>
<th>Camera adapter</th>
<th>Micrometer per pixel</th>
<th>Scanning time (1 cm²)</th>
</tr>
</thead>
<tbody>
<tr>
<td>20x</td>
<td>0.5</td>
<td>0.465</td>
<td>Less than 1 min.</td>
</tr>
<tr>
<td>20x</td>
<td>0.63</td>
<td>0.37</td>
<td>1 min.</td>
</tr>
<tr>
<td>20x</td>
<td>1</td>
<td>0.23</td>
<td>3 min.</td>
</tr>
<tr>
<td>40x</td>
<td>0.63</td>
<td>0.18</td>
<td>4.5 min.</td>
</tr>
<tr>
<td>40x</td>
<td>1</td>
<td>0.12</td>
<td>20 min.</td>
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</tbody>
</table>