



3DHISTECH

# TISSUE MICROARRAY (TMA)

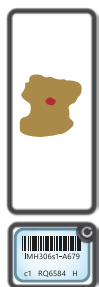
The fastest and most user friendly TMA solution on the market

The tissue microarray (TMA) technique can be used as a valuable, high-throughput tool for diagnostic and research purposes. By being able to place up to several hundred different samples into one paraffin block, TMA saves time and costs of tissue preparation, slide preparation and staining.

With several TMA systems installed worldwide in pathology departments at hospitals, biobanks and research institutes, we are the leaders in the field of digital TMA.

**Pathologists** are using the TMA technique as an excellent tool for cost effective diagnosis. TMA's are also extremely useful as internal controls (on slide control) for traditional IHC slides.

**Biobanks** can create custom made TMAs (tissue sample collections) for the academic and pharmaceutical research as well. TMA blocks are widely used in the **pharmaceutical and biomedical research** for the following applications: identification of predictive or prognostic factors, validation of newly discovered biomarkers, identification of diagnostic targets and therapeutic targets, antibody or probe validation.



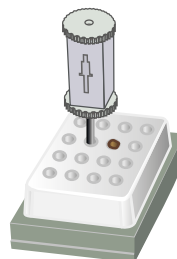
## Digital slide

Mark the relevant area with CaseViewer software.



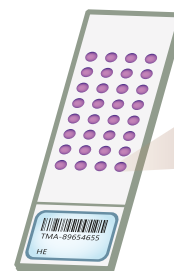
## Donor Block

Find the same area by using TMA Control software.



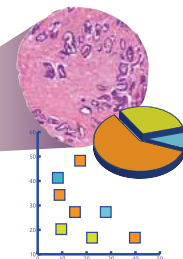
## Recipient Block

Insert the selected tissue core(s).



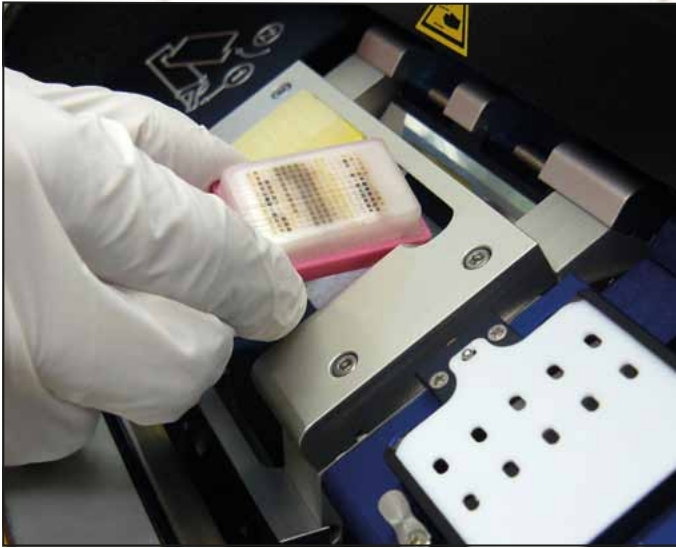
## Sectioning & Staining

All the histochemical and molecular detection techniques are working with TMA sections too.



## Image Analysis

Scan your stained TMA slide. Find the TMA spots and score them with TMA Module and QuantCenter software.



## TMA HARDWARE

By producing smaller and higher capacity fully automated tissue microarrayers, 3DHISTECH is able to give a suitable TMA solution for the majority of customers.

**TMA Master II** is our smaller tissue microarrayer. It is the smallest fully automated tissue microarrayer at the market, it easily fits on any laboratory bench. With its 5 block capacity and high speed it is the ideal solution for smaller laboratories and pathology departments.

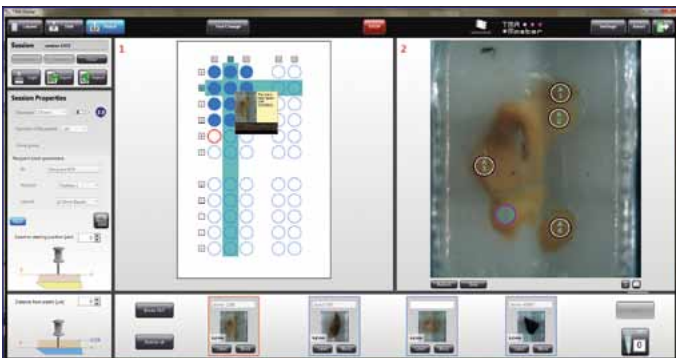
**TMA Grand Master** is our flagship tissue microarrayer. Currently the TMA Grand Master is the highest capacity and the fastest tissue microarrayer at the market. TMA Grand Master is the ideal solution for biobanks, pharmaceutical companies and big pathology departments.



## TMA CONTROL SOFTWARE

The TMA Control software is the perfect solution for TMA block design and creation.

By using the TMA control software the operator can easily **design the recipient block** layout. The tissue core selection is also computer assisted, the user can select the relevant tissue cores from the donor block image. If needed, the pathologist can overlap a previously annotated slide image with the donor block image by using the automated **Digital Slide Overlay functionality**. During the coring process the software automatically records which tissue core went to which recipient block position. At the end of the workflow, this **TMA data could be exported** in Excel file format, and will be an invaluable resource of information during the TMA slide analysis.



The TMA control software works with TMA GrandMaster and TMA Master tissue microarrayers.

	A	B	C	D	E	F	G	H
1	Unique TMA sample ID	TMA Block ID	TMA Block Name	Sectors	Donor Block ID	Donor Block Images	Donor Core Height	Annotation Color
2	1 RB_1	Breast013679	Sector1	1722-02	Donor_image.link	0.8 mm		Grey
3	2 RB_1	Breast013679	Sector1	546-04	Donor_image.link	0.8 mm		#FF0000
4	3 RB_1	Breast013679	Sector1		Donor_image.link	0.8 mm		
5	4 RB_1	Breast013679	Sector1		Donor_image.link	4.4 mm		
6	5 RB_1	Breast013679	Sector1		Donor_image.link	4.4 mm		
7	6 RB_1	Breast013679	Sector1		Donor_image.link	4.4 mm		
8	7 RB_1	Breast013679	Sector1		Donor_image.link	5 mm		Light
9	8 RB_1	Breast013679	Sector1		Donor_image.link	5 mm		
10	9 RB_1	Breast013679	Sector1		Donor_image.link	5 mm		
11	10 RB_1	Breast013679	Sector1		Donor_image.link	3.9 mm		
12					Donor_image.link	4.2 mm		
13					Donor_image.link	4.2 mm		
14					Donor_image.link	3.9 mm		Light
15					Donor_image.link	3.9 mm		Light
16					Donor_image.link	4.3 mm		#FF0000
17					Donor_image.link	4.1 mm		#FF0000
18					Donor_image.link	4.1 mm		
19					Donor_image.link	4.1 mm		
20					Donor_image.link	3.9 mm		
21					Donor_image.link	3.9 mm		
22					Donor_image.link	3.9 mm		
23					Donor_image.link	2.8 mm		
24					Donor_image.link	2.8 mm		
25					Donor_image.link	2.8 mm		
26					Donor_image.link	4.3 mm		
27					Donor_image.link	4.3 mm		
28					Donor_image.link	4.3 mm		
29					Donor_image.link	3.2 mm		
30					Donor_image.link	3.2 mm		
31					Donor_image.link	3.2 mm		
32					Donor_image.link	3.5 mm		
33					Donor_image.link	3.5 mm		#FF0000
34					Donor_image.link	3.5 mm		#FF0000
35					Donor_image.link	2.6 mm		
36					Donor_image.link	2.6 mm		

### Main features:

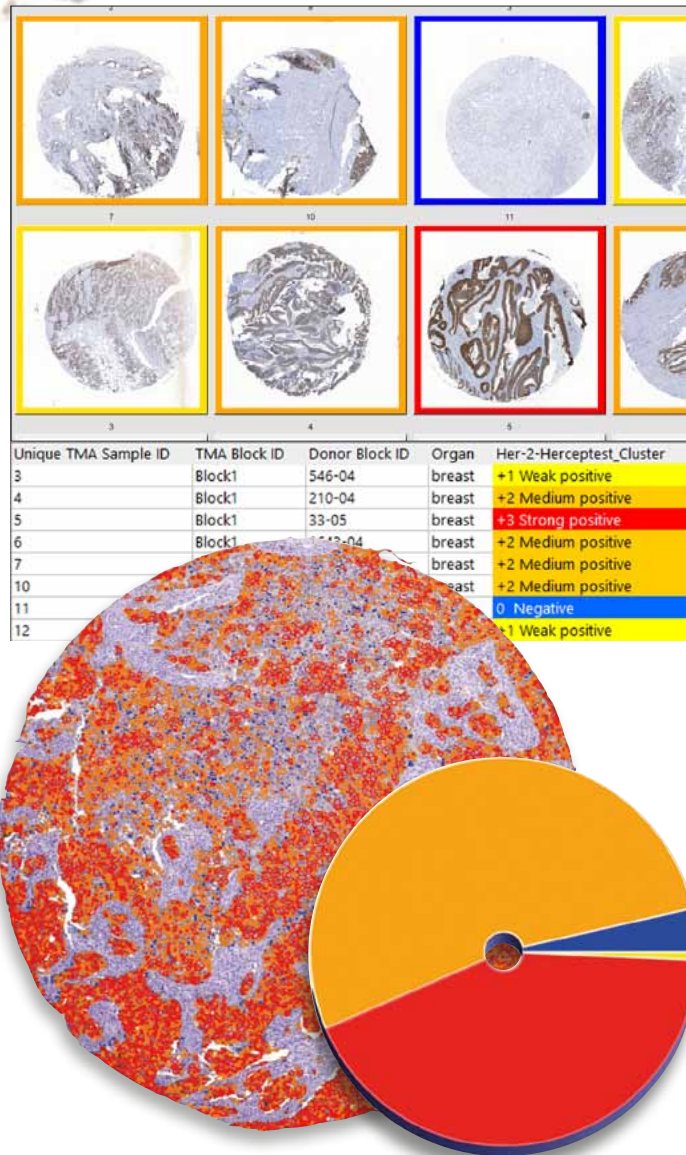
- Project based workflow
- Recipient Block layout designer
- Ability to import Donor Block ID and additional sample data from Excel file
- Barcode based donor block identification
- Automatic digital slide search from Case Center or local drive
- Automatic Digital Slide Overlay with TMA markers from Viewer
- Ability to place tissue cores in a clean PCR tube. These samples could be used for later molecular analysis.
- Advanced and customizable export tool: export TMA data with Donor Block images



## TMA MODULE SOFTWARE

The TMA Module software is the ideal solution for TMA spot detection and analysis. The TMA Module can handle several hundred tissue cores. Is fully compatible with 3DHISTECH digital slide format and with the TMA database files created by our tissue microarrays. During the spot detection the software is able to number and annotate the spots from the TMA database file, additional sample data is also overtaken and is available for later export. The pathologist can set up various scoring schemes for manual scoring. A color could be assigned to each scoring level by the user. Based on the previously set scoring scheme the pathologist can score all the spots in a user friendly gallery window. After the scoring process, in the gallery window, each TMA spot will be marked with the previously set color according to the score selected by the pathologist. The scored TMA spots could be filtered and ordered by various parameters such as: score, stain, sample ID etc. After the scoring process the scoring data, combined with the original TMA data, could be saved in Excel file format. The TMA Module software automatically saves a project file, with all the spot finding and scoring data. Because of this the scoring process could be stopped any time and could be resumed later. By opening the TMA Module Project file the user can reopen and rescore any TMA slide.

By using the annotations generated by TMA Module, QuantCenter applications can automatically quantify selected tissue cores. The results of the automated quantification will be saved directly to the digital slide and could be reviewed spot by spot or in total.



## PCR EXTRACTION

The PCR extraction functionality is one of the unique features of 3DHISTECH tissue microarrays. By using this feature the pathologist is able to isolate and extract tissue samples in clean 0.2 ml PCR tubes. The extracted tissue samples could be used in the molecular pathology workflow. By using commercially available third-party kits, there is a possibility to perform DNA extraction or direct polymerase chain reaction (PCR) on these tissue samples. The DNA extracted from these samples could be used for any molecular biology application, such as: quantitative polymerase chain reaction (qPCR), multiplex PCR and DNA sequencing.



### TMA Master II

### TMA GRAND Master

TUBE CAPACITY	• 4	• 10
CASSETTES / MACHINE	• 1	• 6
	• both: use of cleaning block to avoid cross contamination	

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## TMA Master II

## TMA GRAND Master

### CAPACITY

- 5 block capacity

### SPEED

- 200-250 cores transferred per hour

### OPERATION

- Fully automated operation. Project based TMA creation
- Automatic recipient block creation by drilling
- Automatic block height measurement to ensure the embedded cores are in alignment with the recipient block surface
- Automatic donor block and label image saving for reference
- Use of MRXS digital slide and/or JPEG digital image for sample designation
- Support for clone block creation

### DATA SECURITY

- Automatic project data saving
- Automatic reload of the project data even after a complete power loss

### OPTIONAL FEATURES

- Sample extraction for PCR analysis
- Barcode reading: 1D and 2D

### TOOLS

- Four different tool sizes (mm): 0.6, 1, 1.5, 2

### SIZE

- Dimensions, cm (W × D × H): 38 × 24 × 29
- Weight: 8 kg

### CAPACITY

- 72 blocks:  
60 donor blocks, 12 recipient blocks

### SPEED

- 250-260 cores transferred per hour

### OPERATION

- Fully automated operation. Project based TMA creation
- Automatic recipient block creation by drilling
- Smart task scheduler for optimal operation
- Automatic block height measurement to ensure the embedded cores are in alignment with the recipient block surface
- Automatic donor block and label image saving for reference
- Use of MRXS digital slide and/or JPEG digital image for sample designation
- Support for clone block creation

### DATA SECURITY

- Automatic project data saving
- Automatic reload of the project data even after a complete power loss

### OPTIONAL FEATURES

- Sample extraction for PCR analysis
- Barcode reading: 1D and 2D

### TOOLS

- Four different tool sizes (mm): 0.6, 1, 1.5, 2

### SIZE

- Dimensions, cm (W × D × H): 80 × 50 × 46
- Weight: 48 kg