

Tissue MicroArrayer Platform

Galileo TMA CK3600/CK4600

Semi-Automatic, Computer Driven,

TMA platforms for all types of tissue blocks ideal for archived tissues



Easy to use, direct control of TMA/CMA design and construction phase with precise core selection.

High quality TMA/CMAs.

Key HW specifications:

TMA construction

- **Open architecture that facilitates the simultaneous use** of tissue cassettes of different size (standard and macro), FFPE tissue blocks having different format and heights (up to 15 mm).
- Multiple needle sizes (0,6, 1.0, 1,5, 2.0 – **3,0 & 5,0 mm/diam.**)
- Wide range of samples in one block according to size and punch needle dimension.
- Possibility to place tissue cores in 96/384 PCR microtubes for molecular analysis (2)

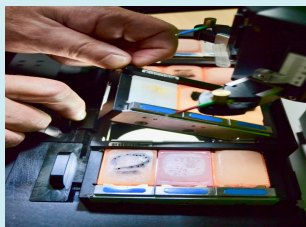
Needle size	Standard Cassette (28x42 mm)	Row & Column	Macro Cassette (52x72 mm)	Row & Column
* 0.6 mm/Dia.	640 cores max.	20x32	1.672 cores max.	38x44
* 1.0 mm/Dia.	300 cores max.	15x20	780 cores max.	26x30
* 1.5 mm/Dia.	140 cores max.	10x40	378 cores max.	18x21
* 2.0 mm/Dia.	80 cores max.	8x10	168 cores max.	12x4
* 3.0 mm/Diam.	24 cores max.	4x6	90 cores max.	9x10
* 5.0 mm/Diam.	12 cores max.	3x4	30 cores max.	5x6



- **Possible configurations:**
 - **12 Standard tissue cassettes** (standard configuration can manage 11 donors + 1 TMA recipient block, or any combinations up to 11 replicas).
 - **9 Standard tissue cassettes + 1 Macro Block** (which can be used as donor or recipient).
 - **6 Standard tissue cassettes + 1 well plate (96, 384)** or microfuge tubes for Nucleic acids extraction and PCR analysis.
 - **Any combination of Standard, Macro and Mega (120x80 mm) tissue cassettes and/or well plate format** (96/384 well plate/microfuge format).
- **Integrated Bar-Code reader** for table and tissue blocks configuration to ensure maximum traceability between donor and tissue core.
- Fast automatic stage **Märzhäuser Wetzlar** with Tango Controller for speed and high accuracy positioning.
- JENOPTIK **PROGRES GRYPHAX ARKTUR cMOS 8MPix (2/3")** Camera.
- High resolution **NAVITAR Zoom 6000 module** optics.
- **Fully automated needles positioning with manual coring** for precision core picking.
- **Manual Coring avoids needle bending and/or breaking during TMA construction (for hard tissues) and visual detection of core picking (for difficult Tissues) ensuring high quality TMAs when the construction is complete.**

(Ref: <https://www.youtube.com/watch?v=fk1h1YZCZI4&t-20s>)

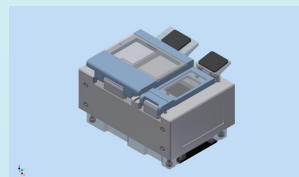
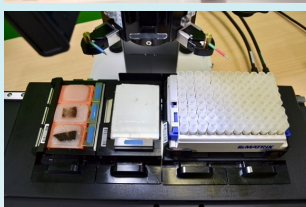
- **All-in-one ASUS computer with Full HD 27" Monitor** (1920x1080) which combined with NAVITAR Optics and GRYPHAX camera gives magnification of the Tissue Block picture from 10X to 62X.



- **Easy Plug-in Tissue Block mounting**
- Light from the top to illuminate the tissue block
- Back light to eliminate paraffin shade
- Possibility to use Tissue Blocks with different cassettes size, paraffin heights and dimensions

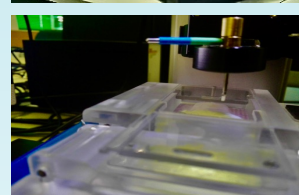


- Possibility to use simultaneously Standard Tissue Blocks, Macro and 96/384 Microfuge well plates

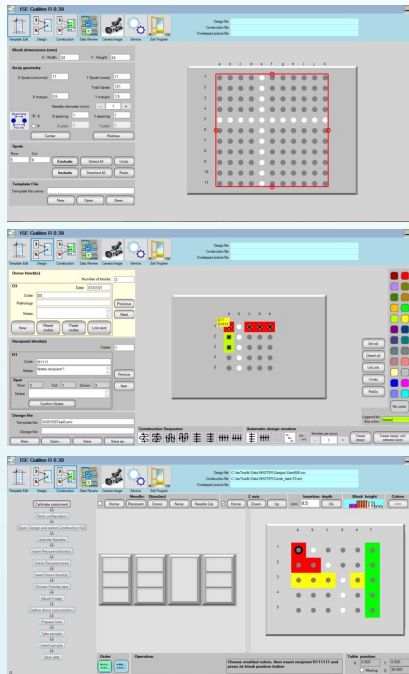


Galileo TMA Frozen Block module

- Easy to use Frozen Block module to construct Frozen TMAs in a controlled temperature environment
- Plug-in accessory for the Galileo TMA CK3x00 and CK4x00 Arrayers
- **Standard Tissue Block Holder: 2 positions** (1 Donor + 1 TMA recipient block)
- **Cooling module:** Solid CO₂ cooling media (3 mm pellets); manual filling; temperature range (-10 to -80°C).
- **2-3 hours autonomy** assuring completion of the TMA construction without protein degradation.



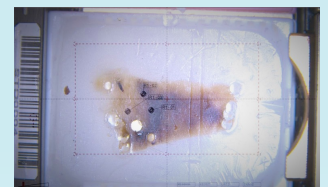
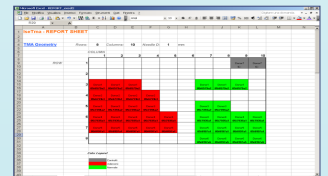
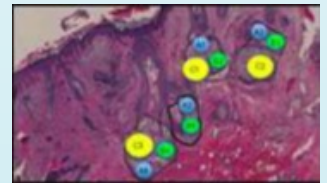
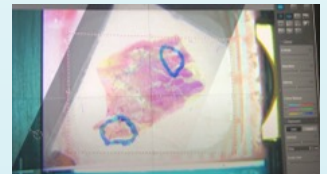
Key SW characteristics:



Galileo TMA Software

- **TMA Template Edit:** easy preparation of the TMA geometry with selection of needle size and space between cores. Mouse stretch function to increase row and columns. Possibility to exclude rows and columns. Save Templates geometry for future use. (https://www.youtube.com/watch?v=EzKJn_pRGH4&t=29s)
- **TMA Design:** defines the position of each tissue core from each donor block. Manual or automatic position of the cores with possibility for random positioning and sequence route. Possibility to use different colours for different spots in order to easy identification of the cores. (<https://www.youtube.com/watch?v=OT08s83OgIE>)
- **TMA Construction:** Use of a unique design file. Tissue block bar code readings (displayed on the screen) to check the position of each tissue block used in the design (with error message). TMA realization (tissue cores picking) guided by a flow-chart. Re-do function for error recovery. (<https://www.youtube.com/watch?v=SF1r78fyfEE&t=6s>)

- **PRECISE CORE SELECTION:** many options to select the core picking area
 - **No overlay:** core selection directly from tissue image.
 - **Manual overlay:** positioning the Glass slide on the Tissue Block. (<https://www.youtube.com/watch?v=rPS8F19CCio&t=3s>)
- **DIGITAL SLIDE OVERLAY FUNCTION**
 - **Import HD image from commercial Digital Scanners**
 - **Selection of area of interest** (with Aperio ImageScope)
 - **Digital Overlay with stretch function:** Overlay digital slide image and adjust image with manual stretching function
 - **Digital Overlay:** Automatic overlay, calibrated on 3 points of the glass slide image versus tissue image. (<https://www.youtube.com/watch?v=AIOjKZTpnc>)
- **DIGITAL REPORT (Data Review)**
 - Create the final report in Open Office format (Excel Compatible) : (1) each spot is identified with barcode or annotated number/description; (2) each spot contains related clinical information; (3) barcodes image or annotation on each tissue cassette; (3) image of each donor block with indication of the extracted core position/s;
 - Create the final TMA report as standard XML file to be imported by commercial digital scanners (Aperio, Hamamatsu, etc.) or Visual imaging software (Visiopharm, PathCore, etc).



- **REMOTE SOFTWARE**
 - Allows multiple user groups to work simultaneously from their PC to: (1) define the TMA geometry (TEMPLATE); (2) create Xml file with all donor blocks; (3) import the Xml file and position each tissue core on the recipient block (DESIGN); (3) import (with ImageScope) HD glass image and select the area of interest (OVERLAY FUNCTION).

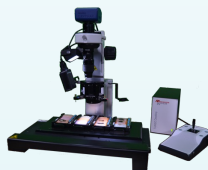
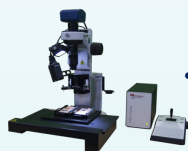
Technical Specifications:

Galileo CK 3600 <https://www.youtube.com/watch?v=pEg3kRC6c0M>

Galileo CK4600 <https://www.youtube.com/watch?v=fk1hIYZCZl4>

Computer Assisted Tissue Microarray

- 6 standard blocks (up to 5 replicas)
- Open architecture, allows to use also Macro Blocks (option).
- Tissue Pick-up function with possibility to deposit tissue cores in vials (onto 24 tube plate) for Nucleic Acids and PCR function
- Precise spot identification with manual or digital overlapping (with stretch functions)
- Open Office format for import/export clinical XML format to Interface with Digital Scanners
- Wide range Punch needle size: 0,6 to 5.0 mm/diam.



Computer Assisted Tissue Microarray

- 12 standard blocks (up to 11 replicas)
- Open architecture, allows to use different cassette size: standard and macroblocks.
- Tissue Pick-up function with possibility to deposit tissue cores in vials (onto 96 well plate) for Nucleic Acids and PCR function.
- Precise spot identification with manual or digital overlapping (with stretch functions)
- Open Office format for import/export clinical data
- XML format to Interface with Digital Scanners
- Wide range Punch needle size: 0,6 to 5.0 mm/dia.

<i>Technical Specifications</i>	<i>CK3600</i>	<i>CK4600</i>
(S) = Standard Block Holder (M) = Macro, (MP) = 96 well plate, (R) = Replicas	6(S)-5® 3(S)+1(M)-2(R)	12(S)- 11(R) 9(S)+1(M)-8(R) 6(S)+1(MP)-5(R)
(MP) = 96/384 microfuge plate	no	yes
24 Tube Holder	yes	---
Digital slide image for core selection and digital overlapping with stretch function (3-Point Overlap)	yes	yes
Punch Needles available	0.6, 1.0, 1.5, 2.0, 3.0, 5.0 mm/dia.	0.6, 1.0, 1.5, 2.0, 3.0, 5.0 mm/dia.
1D-2D Barcoding	yes	yes
Frozen Block Module	yes	yes
Productivity	90 cores/h	110 cores/h

CK3600 can be upgraded to CK4600 if and when needed