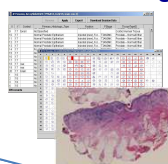# Galileo TMA CKx600 Series
ISENET presents the most updated TMArrayers
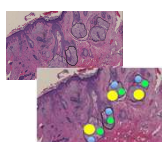
TMA workflow

Pathology database

- Select Tissue
- Export Data
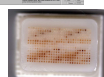- Export Slides HD Image

TMA Geometry and Design

- Define TMA Geometry
- Connect Donor Spot to TMA position
- Select Punch area
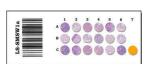
Select punch area

- Import data and images
- Mark hot spot
- Superimpose Digital Image
- Select punch area

TMA Construction

- Insert the selected tissue cores in the TMA block
- Stack Cores in need
- Insert cores in 96/384 plate
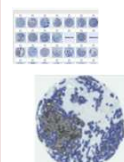
The **Galileo Tissue Microarray Instruments (TMA)** are engineered to satisfy all customer's technical needs and budgets and therefore are available in different models: from the basic level of Mica Array (manual) to the CK3600 and CK4600 (Computer Driven) Systems

The Galileo CK4600 -unique in its kind - is designed with an open architecture which allows to work with different types of tissue cassette (Standard, Macro and Mega (120x80 mm)) and different paraffin sizes and heights (up to 15 mm).

The Galileo CK4600 is also the only TMA on the market that can use 96/384 well plates/microfuges tubes for nucleic acids extraction of FFPE Tissues for PCR/genetic analysis.

The Galileo TMA CK3600 and CK4600 can interface with any commercial Digital Scanner (Aperio, Hamamatsu, TissueGnostics, etc.) and/or Visual Imaging Software (Visiopharm, Definiens, etc.) for "**full traceability**", allowing the Pathologist to use the Digital Scanner available in the Lab.

Thanks to its reliability and flexibility, Galileo TMA Instruments are the most appreciated TMA's on the market, particularly when TMA's are constructed from old archived tissues or being part of multi-centre studies, where standardization is not possible.

Tissue Microarray is a platform for:

- "**high-throughput pathology**", which combines tens to hundreds of Multiple samples (FFPE or frozen tissues) arranged in an organised fashion into a single paraffin block.
- "**high-throughput in-situ proteomic**", with retained histo-morphology, cell specificity using new antibodies and subcellular localization, and protein quantification.

Pathologists use the TMA for *research and diagnostic applications*, with substantial cost reduction with respect to conventional techniques.

TMA is also becoming an essential tool also in **Biobanks** by establishing "**TMA core facilities**" able to supply high quality and well annotated TMA's to researchers and industries for (i) **Basic Research:** to validate and verify gene expression data; (ii) **Translational research**: Diagnostic, Prognostic and Therapeutic markers, Response to therapy; (iii) Query signaling pathways and Drug discovery

CLMA's (Cell Line Macro Arrays)are also used in **Stem Cell Research** as fast and low cost "**high-throughput platform**" to screen for *bona fide* iPS clones and study 3D Organoids/Spheroids.
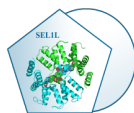
Sectioning and Staining

- Sectioning
- Staining with histochemical and molecular detection techniques

Digital Scanning

- Import TMA geometry
- Re-align spots
- De-Array

Image Analysis

- Analyzes all cores and markers in one batch
- Reduces time to obtain study results

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Philadelphia, Pa - USA

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Galileo TMA CK4600 Hardware features

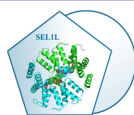- **OPEN ARCHITECTURE (**UNIQUE and EXCLUSIVE FEATURE**) allows the simultaneous use of different types and sizes of tissue cassettes and multi-well plate formats (96/384 well plate or microfuge tubes)**

- **Configuration possible:**

    - *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 extractions 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 configuration and tissue blocks 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* Camera.

- High resolution *NAVITAR Zoom 6000 module* optics.

- *Fully automated needles positioning with manual coring* for precision core picking.

- **Manual Coring** *avoids needle bending 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**.

- *Wide range of punching needles* (0.6 – 1.0 – 1.5 – 2.0 – 3.0 and 5.0 mm/dia).
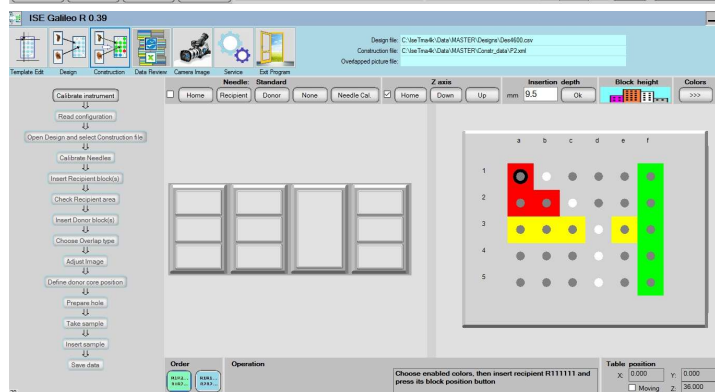
- *Custom design* availability

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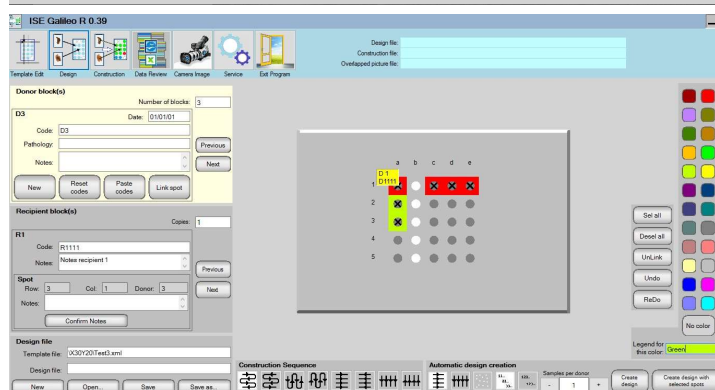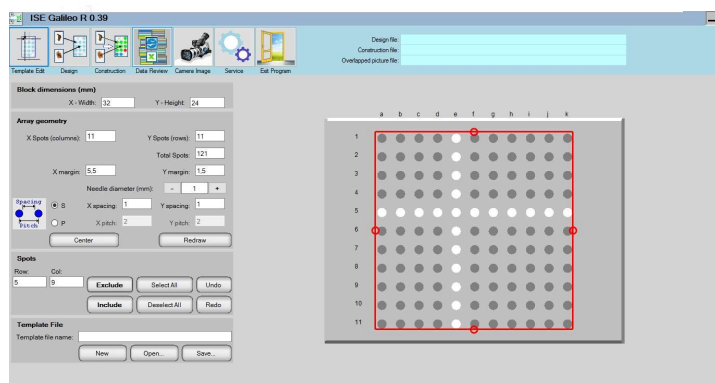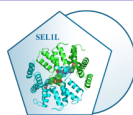*TISSUE & CELL BIOTECHNOLOGIES*
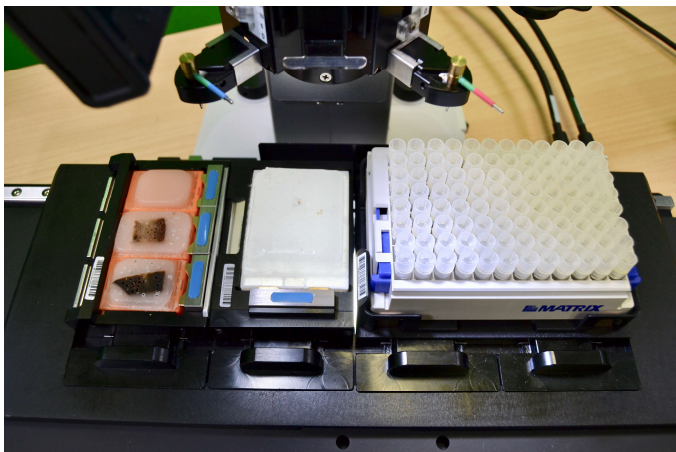
Galileo TMA CK4600

Unique Technical features

- High performance PC-based control system with **27" 4K monitor (ultra HD) for outstanding Tissue Images.**

- *Windows 10 pro.*

- *Jenoptik image software suite* which allows optimal adjustment of the tissue and slide image.

- *Proprietary* CK4600/CK3600 *user interface* designed using C# programming language.

- **TMA Template Edit:** easy preparation of the TMA geometry (can include or eliminate rows and columns).

- **TMA *Design:*** defines the position of each tissue core from each donor block.

- **TMA *Construction:*** for TMA realization guided by a flow-chart and re-do function.

- **Manual & Digital Image Overlapping** for precision core selection. Use of colour for cores positioning. Automatic image capture to be included in the digital report and future reference.

- **TMA Data Review:** allows to create a Report file (Open Office type) with the layout of the TMA and related info (e.g. Image, etc.).

- **Interface with Commercial Digital Scanners.** Leica/Aperio, Hamamatsu, TissueGnostics) and Visual Imaging Software (Visiopharm, Definiens, etc.), to guarantee traceability throughout the TMA workflow.

- *Remote SW* (UNIQUE and EXCLUSIVE FEATURE), allows multiple groups to prepare (from their own PC or laptop) the TMA Template and Design, before starting in PARALLEL the TMA construction without interfering with the actual use of TMArrayer.

- This **REALLY SAVES TIME** on the whole project.

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Galileo CK 3600 https://www.youtube.com/watch?v=fk1hlYZCZl4

Galileo CK4600 https://www.youtube.com/watch?v=fk1hlYZCZl4

Computer Assisted Tissue Microarray
- 6 standard Block 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/dia

Computer Assisted Tissue Microarray
- 12 standard Block (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.

Technical Specifications	*CK3600*	*CK4600*
(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)
(M) = Macro Block Holder	yes	yes
(MP) = 96 well plate format	no	yes
24 Tube Holder	yes	yes
1D-2D Barcoding	yes	yes
Digital slide image for core selection and digital overlapping with stretch function (**3-Point Calibration**)	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.
Productivity	90 cores/h	110 cores/h

CK3600 can be upgraded to CK4600 if and when needed