

Free registration online: [LINK](#)

**Feb. 29th - March 1st, 2024 - WORKSHOP ON:
“The Future of Pathology Research is Digital: New
Challenges and Old Friends”**

**Congress venue:
OpenZone, Open Lamp Conference room
Via Lillo del Duca, 10 - 20091 Bresso (Milan) –Italy**



Prof. Guido Sauter

Institute of Pathology, University Medical Center
Hamburg-Eppendorf, Hamburg, Germany

- **Large-scale tissue-based validation of antibodies for IHC.**
- **All you ever wanted to know about TMAs - and did not dare to ask.**



Dr. Judit Kumuthini

ABLE (African Biobank and Longitudinal Epidemiological Ecosystem) and Onehealthomics – South Africa.

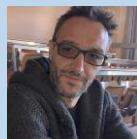
- **Machine Learning and Artificial Intelligence applications to the future of pathology research.**



Dr. Regan Baird

SVP Research Commercial Strategy Deployment
Visiopharm - Denmark

- **The role of Tissue Microarray in AI and Spatial Biology.**



Prof. Fabio Pagni

Associate Professor at University Milano Bicocca and Pathologist at Hospital San Gerardo Monza Italy

- **NGS workflow in Pathology: limits and perspectives?**



Prof. Giorgio Cattoretti

Former Director of Pathology department Hospital San Gerardo and Associate Professor of Pathology
University Milano Bicocca. - Italy

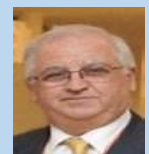
- **Ways and costs (time, money) to put hundreds of markers on a single section.**



Prof. Salvatore Piscuoglio

Associate Professor of Genetics at Humanitas University, Milano Italy and Group Leader at University of Basel, Switzerland; Precision Medicine-Molecular-Cell Biology.

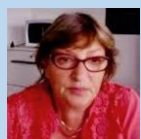
- **Patient-derived models to enhance precision oncology.**



Ing. Pasquale De Blasio

Founder & Managing Director of Integrated Systems Engineering, srl – Italy
Founding President of ESBB)

- **Tissue Microarray applications in emerging technologies.**



Prof. Ida Biunno

Associate Professor to University of Pavia. Senior researcher of Institute for Genetic and Biomedical Research (IRGB-CNR) - Italy

- **The application of Tissue Microarray Technology to study 3D-grown Spheroids & Organoids.**

Scientific Committee:

Prof. Guido Sauter – University of Hamburg - Germany

Prof. Luigi Maria Terracciano – Humanitas University - Italy

Ing. Andrea De Blasio – ISENET-USA LLC - USA

Confirmed Sponsors:



MS Validated Antibodies

Registration on-line: [Link](#)



SAVE the DATE

Feb. 29th-March 1st, 2024

The Future of Pathology Research is Digital: New Challenges and Old Friends



AGENDA – February 29th, 2024

10:00 Welcome and Introduction – Objectives of the Workshop
- **Ing. Pasquale De Blasio** (*Integrated Systems Engineering - Milano, Italy*)

10:30 MAIN LECTURE - Large-scale tissue-based validation of antibodies for IHC
- **Keynote Speaker - Prof. Guido Sauter** (*Institute of Pathology, UKE, Hamburg, Germany*) -

Antibodies Validation for clinical/experimental use

Immunohistochemistry (IHC) is the most commonly used method for the molecular analysis of tissues both in research and in surgical pathology. Selecting the right antibody from the many available products is essential for the success of brightfield – and even more – of multicolor fluorescence IHC studies. More than 99.9% of the antibodies on the market are undervalidated because their specificity testing was done in only one or few (knock-out) cell line(s). This is insufficient because human tissues always consist of a broad range of different cell types all of which express proteins that were not expressed by the “validation cell line”. Therefore, undervalidated antibodies often cross-react with one or several other proteins. They constitute a major cause for highly conflicting IHC data in the literature. In this presentation, strategies and algorithms will be presented to use large tissue resources and TMAs to properly validate and select antibodies.

11:30 Machine Learning and Artificial Intelligence applications to the future of pathology research.
- **Dr. Judit Kumuthini**, (*ABLE – South Africa*)

Digital Pathology and Artificial Intelligence

In modern clinical practice, digital pathology plays a crucial role, its requirement is in great demand in scientific laboratory environments. The advent of whole-slide imaging, high speed network and cheaper storage solutions availability, has facilitated the managing and sharing of the digital slides - by pathologists - among colleagues for clinical consultation. In parallel, unprecedented advances in machine learning has enabled the synergy of artificial intelligence and digital pathology offering image-based diagnosis possibilities which once limited to radiology and cardiology only. Integration of digital slides into the pathology workflow, advanced algorithms and computer-aided diagnostic techniques extend the frontiers of the pathologist's vision beyond a microscopic slide. This application enables true utilisation and integration of knowledge beyond human limits and boundaries; we believe there is a great potential for artificial intelligence breakthroughs in the pathology setting.

12:30 WORKING LUNCH – MEET THE SPEAKERS and VENDORS

14:00 Ways and costs (time, money) to put hundreds of markers on a single sections
- **Prof. Giorgio Cattoretti**, (*University Milano Bicocca - Monza, Italy*)

Spatial omics and multiplexed imaging to explore cancer biology

New technologies leveraging multiplexed antibody labelling, DNA and RNA in situ single cell hybridization, enable the detection of tens to thousands of molecular biomarkers within their native spatial context. The rapid growth in these techniques, along with multiomics data integration, promises a support to a more comprehensive understanding of cell-to-cell variations within and between cells within their environment.

14:45 The role of Tissue Microarray in AI and Spatial Biology.
- **Dr. Regan Baird** (*Visiopharm – Denmark*)

Artificial Intelligence: Digital Pathology, TMA and Spatial Biology

The resurgence of tissue microarrays (TMAs) is notable in the context of AI and spatial biology. TMAs offer a diverse range of tissue morphologies in a single slide, providing a rich dataset crucial for training robust AI models to identify objects in whole slides. This diversity is essential for the accuracy of AI algorithms in tissue analysis. Additionally, TMAs prove cost-effective in multiplex spatial biology by allowing targeted sampling of relevant areas, addressing the prohibitive reagent costs. Additionally, the integration of AI as a decision support tool during TMA generation further enhances efficiency by identifying and isolating the most pertinent regions within a tissue block. Together, TMAs and AI present a synergistic approach that holds promise for advancing pathology and tissue analysis techniques.

15:45 QUESTIONS AND ANSWERS – MEET THE SPEAKERS and VENDORS

16:30 End of the first day



SAVE the DATE

Feb. 29th-March 1st, 2024

The Future of Pathology Research is Digital: New Challenges and Old Friends

AGENDA – March 1st, 2024

10:00 Welcome and Objectives of the Workshop (Second Day)

- Prof. Ida Biunno – (Università di Pavia, Italy)

10:15 MAIN LECTURE - All you ever wanted to know about TMAs - and did not dare to ask

- Keynote Speaker: Prof. Guido Sauter (Institute of Pathology, UKE, Hamburg, Germany)

Tissue Microarray Technology

Tissue microarray (TMA) technology is contributing to the rapid expansion of current studies of molecular *in situ* analysis and integration with clinical and pathology data. In conventional methods, the tissue samples are extracted from archived “donor” paraffin blocks and re-inserted into a “recipient” paraffin block. Sections from TMA blocks are then used in several types of assays, such as immunohistochemistry, *in situ* hybridization, histoenzymology, histochemistry, etc. It has been shown, in numerous experiments, that these arrays can be representative of tissues of the donor blocks, although the samples used are sometimes only 0.6 mm in diameter. This method will be the basis of multiple experiments in different fields of research and can speed up the transition of in-depth research results towards clinical applications.

11:15 NGS workflow in Pathology: limits and perspectives?

- Prof. Fabio Pagni (University Milano Bicocca - Monza, Italy)

Next-Generation Sequencing on Frozen and FFPE Tissue samples

The introduction and availability of anticancer therapies based on precision and personalized medicine has made molecular assessments of malignant tumours increasingly important. These studies typically give information regarding possible therapeutic targets as well as important prognostic information. Recent advances in high-throughput next-generation sequencing (NGS) technologies have reduced the cost and increased the workflow speed, helping to detect important genetic alterations.

12:00 WORKING LUNCH – MEET THE SPEAKERS and VENDORS

14:00 Patient-derived models to enhance precision oncology

- Prof. Salvatore Piscuoglio (Precision Medicine Lab – Milan, Italy)

Cancer Spheroids and Organoids for Research and Therapy

Spheroids and organoids are important novel players in medical and life science research. They are gradually replacing two-dimensional (2D) cell cultures. Indeed, three-dimensional (3D) cultures are closer to the *in vivo* reality and open promising perspectives for academic research and personalized drug screening. A large variety of cells types and tissues, stem cells or cancer cell lines can be the starting material for the generation of 3D cultures.

14:45 The application of Tissue Microarray Technology to study 3D-grown Organoids

- Prof. Ida Biunno (Università di Pavia, Italy)

The Tissue Microarray (TMA) can serve as a platform to analyze 3D-grown spheroids/organoids, offering insights into organ development and disorders. Cells grown in 3D, enhance the understanding of disease etiopathogenesis, aiding in preclinical drug screening. TMAs facilitate the examination of combined protein expression profiles in different growth conditions, highlighting the relevance of specific markers. This methodology can be scaled up in terms of the number of specimens and consecutive sections for diverse analyses using various probes and antibodies. We have used TMA technologies to explore the generation of cerebral organoids starting with hiPS cells, aligning with the growing significance of these approaches in basic research.

15:15 Tissue Microarray applications in emerging technologies.

- Ing. Pasquale De Blasio – (Integrated Systems Engineering – Milano, Italy)

Tissue Microarray Core Facility

TMAs can be created from various types of diseased and non-diseased tissues, including formalin-fixed and frozen tissues, xenograft tissues, cell lines, and organoids/spheroids. The versatility of TMA technology extends beyond *in situ* analysis (immunohistochemistry-fluorescence) to include genomic and transcriptomic investigations, facilitating proteomic comparisons. TMAs expedite the identification of biomarkers and drug discovery, as they can validate drug targets, potential treatments, and related side effects when combined with epitope-based tissue mass spectrometry and digital spatial profiling. To overcome the translational bottleneck and bring research lab results into clinical applications, the automation of TMA technology with AI based deep learning algorithms, the simultaneous evaluation of multiple biomarkers (multiplexing) and quantitative analysis are essential.

16:00 QUESTIONS AND ANSWERS – MEET THE SPEAKERS and VENDORS

16:30 End of the workshop.

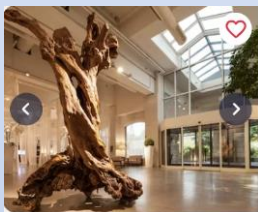
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Suggested accommodations:



- **NEO HOTEL**
- Address: Via 25 Aprile 49/51 - 20091 Bresso (MI)
- Phone: +39 [02 610 14 22](tel:+39026101422)
- Web site: <https://neohotel.it/en/>
- Distance from Congress Venue: < 1 Km (walking distance)



- **Cosmo Hotel Palace**
- Address: Via F. de Sanctis, 5, 20092 Cinisello Balsamo MI
- Phone: [+39 02 617771](tel:+3902617771)
- Web site: <https://www.cosmohotelpalace.it/en>
- Distance to Congress Venue: 3 km



- **Grand Hotel Villa Torretta Milan Sesto**
- Address: Via Milanese, 3, 20099 Sesto San Giovanni MI
- Phone: [+39 02 241121](tel:+3902241121)
- Website: https://www.hilton.com/en/hotels/miltoqq-grand-hotel-villa-torretta-milan-sesto/?SEO_id=GMB-EMEA-QQ-MILTOQQ
- Distance to Congress Venue: 3 km

How to Reach the OpenZone campus: <https://www.openzone.it/en/live/come-raggiungerci>

For more information, please contact:
pasquale.deblasio@isenet.it