



The MU Vienna Department of Pathology
&
The Nottingham Molecular Pathology Node

Molecular Diagnostics Training School

23-26 February 2025

This Training School will be
delivered as a HYBRID Event!

ALL TIMES ARE CET !

DEPARTMENT OF PATHOLOGY



Vienna Healthcare Group
University Hospital Vienna



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Austrian Society of
Pathology and the
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Society





Foreword

Molecular Diagnostics Training School 2025

From Prof. Renate Kain

Dear Delegates,

I would like to welcome you all to the seventh **Molecular Diagnostics Training School**, to be held as a hybrid event. The school is supported by the **Austrian Society of Pathology**, the **Nottingham Molecular Pathology Node**.

Established in co-operation with the University of Nottingham, the Molecular Diagnostics Training School has developed into a highly successful joint venture. As last year, we are covering the basics of molecular diagnostics, digital pathology and image analysis in **pre-recorded lectures** that provide the foundation for those of you who have little or no experience in either biological background or technical/methodological approaches. These pre-recorded lectures will be available to you before the beginning of the Training School and are the basis for the specialized lectures on recent developments in technological approaches as well as worked examples.



As for the **Molecular Diagnostics Training School (MDTS)** I would like to begin with the following statement:

Molecular Diagnostics is the foundation for precision medicine.

The MDTS is aimed at persons who may have little experience with molecular diagnostics but also those who are looking for a refresher course or want updates on novel developments. The training school will introduce you to common concepts which underpin the tests, including the panoply of tests which are currently used in diagnostic practice. We will also discuss the importance of getting good template and of having robust quality assurance for your tests. The school will also cover new methodologies such as digital spatial profiling and it will conclude with an overview of current applied molecular diagnostics in a variety of different organ systems.

We have a world class faculty to deliver the teaching materials and to deal with any questions.

I hope you enjoy and benefit from the training school. We will not make you into a card-carrying molecular biologist in these three days, but if you come away agreeing with my introductory statement, then the school will have achieved its aims!

Best wishes,

Renate Kain

Renate Kain

Professor of Pathology
Medical University of Vienna



Molecular Diagnostics Training School 2025

Sunday, 23 February 2025

Pre-Conference Tutorials (Optional)

ONLINE ONLY

Tutorials for the Molecular Diagnostic Training School (optional)

Registered attendees can watch the tutorials below via the links emailed to them.

The Basic Principles of PCR

Prof. Mohammad [Ilyas](#) - University of Nottingham, UK

Basics of FISH

Prof Ana-Iris [Schiefer](#) - Medical University of Vienna, Austria

Human Genome Variation Society (HGVS) Variant Nomenclature

Prof Leonhard [Müllauer](#) - Medical University of Vienna, Austria

The Basics of Genomics and Transcriptomics

Prof Martin [Bilban](#) - Medical University of Vienna, Austria

Quality Control in NGS

Dr Antonios [Koussounadis](#) - Saphetor SA

Integrative Genome Viewer

Dr Raheleh [Sheibani Tezerji](#) - Medical University of Vienna, Austria

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Molecular Diagnostics Training School 2025

Day 1 – Monday, 24 February 2025

Basics of Technologies

Morning Session Chair: *Prof. M. Ilyas*

08:25	Introduction - Welcome
08:30	Real-Time PCR and Data Interpretation Prof. Mohammad Ilyas – University of Nottingham, UK
10:00	Comfort break
10:30	The Highs / Lows and Data Interpretation of Sequencing Dr Susan Richman – St James University Hospital, Leeds, UK / Dr Antonios Koussounadis - Saphetor SA
12:00	The Liquid Biopsy Prim. Prof. Karl Sotlar – University Hospital Salzburg, Austria
12:30	Next Generation Sequencing – Worked Examples Part 1 Prof Martin Bilban - Medical University of Vienna
13:00	Lunch break
<i>Afternoon Session Chair: Prof. L. Müllauer</i>	
14:00	Chromogenic In-Situ Hybridisation Prof. Elizabeth Soilleux - Dept of Pathology, University of Cambridge, UK
14:30	The Molecular Tumour Board Prof Leonhard Müllauer – Medical University of Vienna, Austria
15:00	Next Generation Sequencing – Worked Examples Part 2 Dr Sophia Petschnak - Klinik Favoriten, Vienna
15:30	Comfort break
16:00	NEQAS – Ensuring Standards in Molecular Diagnostics Dr Jenni Fairley – UK NEQAS, UK
16:30	NGS – Principles & Platforms PD Dr Gregor Hörmann - MLL Munich Leukemia Laboratory, Germany
17:30	Wrap-up Day 1 of MDTs

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Molecular Diagnostics Training School 2025

Day 2 – Tuesday, 25 February 2025

Worked Examples I

Morning Session Chair: *Prof. R. Kain*

08:45	Homologous Repair Deficiency Prof Leonhard Müllauer , Prof Christoph Grimm - Medical University of Vienna, Austria
09:15	Hereditary Tumour Syndrome Prof Katharina Wimmer - Medical University of Innsbruck, Austria
10:00	Comfort break
10:30	Molecular Diagnostics and Immuno-Oncology Dr Alexander Haragan - Royal Liverpool University Hospital, UK
11:15	Molecular Diagnostics in Mesothelioma Dr Luka Brcic - Medical University of Graz, Austria
11:45	Molecular Diagnostics in Soft Tissue Tumours Dr Suk Wai Lam - Leiden University Medical Center, The Netherlands
12:15	Molecular Diagnostics in Lung Cancer Prof Leonhard Müllauer - Medical University of Vienna, Austria
12:45	Lunch break
	Afternoon Session Chair: <i>Prof. AI Schiefer</i>
13:45	Molecular Diagnostics in Melanoma Prof Ana-Iris Schiefer - Medical University of Vienna, Austria
14:15	Molecular Diagnostics in Male Genitourinary Cancers Prof Clare Verrill - University of Oxford, UK
15:00	Molecular Diagnostics in Prostate Cancer Prof Jyotsna Batra , Queensland University of Technology, Australia
15:45	Comfort break
16:15	Molecular Diagnostics in Gynaecological Cancers / Worked Examples Prim. Prof. Sigurd Lax - Medical University of Graz, Austria
17:00	Wrap-up Day 2 of MDTS

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Molecular Diagnostics Training School 2025

Day 3 – Wednesday, 26 February 2025

Worked Examples II

Morning Session Chair: *Prof. Zs. Bago-Horvath*

08:30	Programmed Cells – Machine Learning for Molecular Medicine Prof Christoph Bock - CeMM Research Center for Molecular Medicine of the Austrian Academy
09:30	Molecular Diagnostics in CNS Cancers Dr Zane Jaunmuktane - UCL Queen Square Institute of Neurology, UK
10:15	Comfort break
10:45	Molecular Diagnostics in Lymphoid Cancers Prof Ming Du - University of Cambridge, UK
11:30	Scientific Databases and Software in Diagnostic Molecular Pathology Dr André Oszwald - Medical University of Vienna, Austria
12:15	Rubbish in=Rubbish out: The Importance of Template Dr Abhik Mukherjee - University of Nottingham, UK
12:45	Lunch break
<i>Afternoon Session Chair: Prof. R. Kain</i>	
13:45	Molecular Diagnostics in Breast Cancers Prof Emad Rakha - University of Nottingham, UK
14:30	Prognostic and Predictive Molecular Tests for Breast Cancer Prof Zsuzsanna Bago-Horvath - Medical University of Vienna, Austria
15:15	Molecular Diagnostics in Gastrointestinal Cancers Prof Gerald Höfler - Medical University of Graz, Austria
16:00	Comfort break
16:30	Pharmacogenomics Prof Henk Jan Guchelaar - Leiden University Medical Center, The Netherlands
17:15	Homologous Recombination Deficiency, a Novel Biomarker in Cancer PD Dr Theo Kraus - University Hospital Salzburg, Austria
18:00	Wrap-up Day 3 and Close of MDTs

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The MU Vienna Department of Pathology
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The Nottingham Molecular Pathology Node

Digital Pathology & Image Analysis Training School

27 February – 01 March 2025

This Training School will be
delivered as a HYBRID Event !

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Foreword

Digital Pathology & Image Analysis Training School 2025

From Prof. Renate Kain

Dear Delegates,

I would like to welcome you all to the sixth **Digital Pathology & Image Analysis Training School**, to be held as a hybrid event. The school is supported by the **Austrian Society of Pathology**, the **Nottingham Molecular Pathology Node**.

Established in co-operation with the University of Nottingham, the Digital Pathology & Image Analysis Training School has developed into a highly successful joint venture. As last year, we are covering the basics of molecular diagnostics, digital pathology and image analysis in **pre-recorded lectures** that provide the foundation for those of you who have little or no experience in either biological background or technical/methodological approaches. These pre-recorded lectures will be available to you before the beginning of the Training School and are the basis for the specialized lectures on recent developments in technological approaches as well as worked examples.



An apt introduction to our **Digital Pathology & Image Analysis Training School** is the statement:

Digital Pathology and Image Analysis: Prepare, the future is here!

The DP&IATS is aimed at both, Trainee and Consultant Pathologists and non-clinical scientists/computer experts, who may have some experience with digital pathology and platforms, but are looking to deepen their knowledge. Thus the training school aims at bringing together histopathologists and computational scientists to foster mutual understanding and collaboration. As digital technologies are transforming histopathology diagnosis and research, the training school will outline some of the basic challenges encountered during image analysis and introduce the concepts of stereology and segmentation analysis. In view of the rapid need for integration of image analysis with molecular diagnostics development, we shall explore both the spatial reasoning of imaging and assessment of multiple biomarkers on digital platforms.

We have a world class faculty to deliver the teaching materials and to deal with any questions. The school has a number of industrial sponsors and they have been invited to give brief presentations of digital pathology from an industrial perspective.

I hope you enjoy and benefit from the two training schools. We can only hope that the basic language of image analysis is no longer alien and the clinical perspective contextualized after the three-day DP&IATS, but if you come away agreeing with my introductory statements, then the school will have achieved its aims!

Best wishes,

Renate Kain

Renate Kain

Professor of Pathology
Medical University of Vienna



Digital Pathology & Image Analysis Training School 2025

Sunday, 23 February 2025

Pre-Conference Tutorials (Optional)

ONLINE ONLY

Tutorials for the Digital Pathology & Image Analysis Training School (optional)

Registered attendees can watch the tutorials below via the links emailed to them.

Basics of Digital Imaging Including Lexicons

Prof Vincenzo [Della Mea](#) - University of Udine, Italy

What is a Whole Slide Image?

Dr Christopher [Kaltenecker](#) - Medical University of Vienna, Austria

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Digital Pathology & Image Analysis Training School 2025

Day 1 – Thursday, 27 February 2025

Exploring Terms and Technologies I

Morning Session Chair: *Prof. M. Ilyas*

08:25 Introduction
Prof. Mohammad [Ilyas](#) - University of Nottingham, UK

Whole Slide Image Generation

08:30 Roadmap to Digitize Pathological Workflows
Dr Anna [Bodén](#) - Linköping University, Sweden

09:15 End to End Quality in Digital Pathology
Prof. David [Brettle](#) - Leeds Teaching Hospitals NHS Trust, UK

10:00 Comfort break

10:30 Implementing Digital Pathology: The Step from Research to Diagnostics
DI Markus [Plass](#) - Medical University of Graz, Austria

11:15 Spatial Reasoning for Histological Imaging
Prof. Gabriel [Landini](#) - Birmingham University, UK

12:00 Lunch break

Afternoon Session Chair: *Prof. R. Kain*

12:45 Industrial Presentation
TissueGnostics GmbH, Vienna, Austria

13:00 Digital Pathology: where are we on the hype cycle?
Prof. Mohammad [Ilyas](#) - University of Nottingham, UK

13:45 Assessing Immunohistochemistry – Scoring Methods and Pitfalls
Dr Abhik [Mukherjee](#) - University of Nottingham, UK

Thinking Like a Computational Pathologist – Methods in Computational Pathology

14:30 From Pixel to Tissue - Introduction to Computational Pathology for Pathologists
Prof Andrew [Janowczyk](#) - Emory University, Atlanta, USA

15:15 Quantitative Histo-Morphometry – from Pixels to Diagnosis
Dr Alain [Pitiot](#) - Ilixa Ltd, Ludwig Boltzmann Institute, Austria; University of Nottingham, UK

16:00 Comfort break

16:30 Explainable Models for Computational Pathology
Dr Simon [Graham](#) - Histofy, UK

17:15 Information Management and Standardization
Dr Maximilian [Koeller](#) - Medical University of Vienna, Austria

18:00 Vision Image Transformers: Attention Is All You Need
Prof Faisal [Mahmood](#) - Harvard Medical School, Boston, USA

18:45 Wrap-up Day 1 of DP&IATS

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Digital Pathology & Image Analysis Training School 2025

Day 2 – Friday, 28 February 2025

Exploring Terms and Technologies II

Morning Session Chair: *Prof. M. Ilyas*

What Is Machine Learning in the Context of Computational Pathology?

08:30	General Introduction to Machine Learning for Pathologists Prof Vincenzo Della Mea - University of Udine, Italy
09:15	Data Augmentation, Stain Normalisation and Artefact Detection Khrystyna Faryna - Radboudumc, The Netherlands
10:00	Comfort break
10:30	Convolutional Neural Networks: Leaving the Field of Histomorphometry Prof Vincenzo Della Mea - University of Udine, Italy
11:15	Machine Learning Tasks in Computational Pathology (Segmentation, Classification, Regression) Prof Andrew Janowczyk - Emory University, Atlanta, USA
12:00	Introduction to QuPath Dr Alan O'Callaghan - University of Edinburgh, UK

12:45 Lunch break

Afternoon Session Chair: *Prof. R. Kain*

13:30	Industrial Presentation Leica Biosystems, Germany
13:45	How to Create a Dataset for Computational Pathology and What Points to Consider Dr Christof Bertram – University of Veterinary Medicine, Vienna
14:30	High-Throughput Quality Control, Annotation, and Labeling in Digital Pathology Repositories for Biomarker Discovery Prof Andrew Janowczyk - Emory University, Atlanta, USA

15:15 Comfort break

How to Translate a Pathological Question into Computational Pathology

15:45	TIA ToolBox Prof. Nasir Rajpoot - University of Warwick, UK
16:30	Histogenic Molecular Mapping – Multivariate Analysis of IHC Biomarkers Dr Alain Pitiot - Ilixa Ltd, Ludwig Boltzmann Institute, Austria; University of Nottingham, UK
17:15	Functional Profiling Prof Philipp Staber - Medical University of Vienna, Austria

18:00 Wrap-up Day 2 of DP&IATS



Digital Pathology & Image Analysis Training School 2025

Day 3 – Saturday, 01 March 2025

Worked Examples

Session Chair: *Prof. R. Kain*

How to Translate a Pathological Question into Computational Pathology

08:30	Prostate – Computational Pathology in Uro pathology Prof Jeroen van der Laak - Radboudumc, The Netherlands
09:00	Breast – Computational Pathology in Senology Prof Zsuzsanna Bago-Horvath - Medical University of Vienna, Austria
09:30	GI Tract – Computational Pathology in Gastroenterology Sophia J. Wagner - Technical University Munich, Helmholtz AI, Germany
10:00	MALDI Imaging – Applications in Pathology Dr Kristina Schwamborn - Technical University Munich, Germany
10:45	Comfort break
11:15	Industrial Presentation PreciPoint GmbH, Germany
11:30	AI in the Oncology Setting Prof Jakob N Kather - Technical University Dresden, Germany
12:15	Digital Intelligence for Tissue Pathology Prof Arvydas Laurinavičius - VUHSK, Vilnius, Lithuania
13:00	Future Outlook - The Remarkable Potential of Deep Learning for Histopathology Prof Jeroen van der Laak - Radboudumc, The Netherlands
13:45	Wrap-up Day 3 and Close of DP&IATS

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