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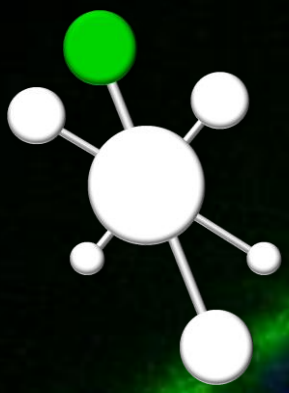

Nottingham Molecular Pathology Node

& The Pathological Society of Great Britain & Ireland

Molecular Diagnostics Training School 2020

And Image Analysis Training School 2020

Pathological Society

Understanding Disease — Guiding Therapy

Newton Fund Background

The University of Nottingham has been awarded a Newton Fund to study Improving Clinical Outcome in Indonesia with a Novel diagnostic test for Colorectal Cancer (ICONICC)

As part of this project we will develop UK-Indonesia training schools and Focus Group Discussion (FGD) to promote knowledge exchange and adoption of new molecular test into clinical practice.

The Molecular Diagnostics Training School (MDTS) forms part of this delivery, with details as follows.

Molecular Diagnostics Training School (MDTS) course overview

Diagnostic Molecular Pathology is the interrogation of tissue-derived molecules (DNA / RNA / protein) to provide clinically useful information adjunctive to routine histopathological examination.

The Nottingham Molecular Pathology Node (NMPN), supported by The Pathological Society of Great Britain and Ireland, will run the Molecular Diagnostics Training School (MDTS) in September 2020 which aims to:

- Teach the theory and utility / limitations of commonly used tests
- Provide a comprehensive overview of the current use of molecular diagnostics

The course is suitable for Trainee and Consultant Pathologists with little or no experience of diagnostic molecular pathology and for non-clinical scientists (who may have some experience with molecular testing) who wish to learn more about the clinical application of molecular diagnostics. Teaching will be delivered in the form of formal didactic lectures, interactive tutorials and problem-solving exercises.

This year, for the first time, the course will be delivered entirely online.

Dates: Monday 28th September – Wednesday 30th September 2020
(with optional free of charge introductory session on Sunday 27th September)

Format: The course will be offered entirely online, with a blend of live lectures, Q&A sessions and interactive elements.

CPD: This course has been awarded 17 CPD points from the Royal College of Pathologists. You will receive your certificate via email following the event.

Registration

Registration is free of charge for our Indonesian guests as part of this project/fund. The course will be delivered entirely online, allowing flexibility to join for all or just part of the course depending on your interests and availability.

Not only will your registration give you access to the full programme (details on next page) you will also get access to:

- Recordings of all the lectures from the course and resources from our MRes in Molecular Diagnostics, Bioinformatics and Diagnostics for 1 year from the 8th October 2020.
- A free place on our Image Analysis Training School (IATS) also taking place online, on Thursday 1st & Friday 2nd October 2020. You can find full details of the IATS here, and will be given the option to add your free place on this course when making your booking.

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MDTS Programme

Sunday 27th September: Pre-course introductory session

This is an optional session. You will be given the opportunity to opt in or out when booking.

14:00	**The Highs / Lows and Data Interpretation of PCR** Prof Mohammad Ilyas - University of Nottingham
15:30	**Bioinformatics for Beginners** Dr Isioma Egbuniwe - University of Nottingham

Monday 28th September: Tissue Interrogation

08:55	**Introduction** Prof Mohammad Ilyas - University of Nottingham
09:00	**Interpretation of PCR Data** Prof Mohammad Ilyas - University of Nottingham
09:30	**The Highs / Lows and Data Interpretation of Sequencing** Dr Susan Richman - St James University Hospital, Leeds
11:00	**Comfort break**
11:30	**The Highs / Lows and Data Interpretation of In-Situ Hybridisation** Kate Martin - Nottingham University Hospitals NHS Trust
13:00	**Lunch break**
14:00	**Chromogenic In-Situ Hybridisation** Dr Elizabeth Soilleux - Churchill College Cambridge
14:30	**The Liquid Biopsy** Dr Karen Page - University of Leicester
15:00	**NEQAS: Ensuring Standards in Molecular Diagnostics** Dr Jenni Fairley - UK NEQAS
15:30	**Comfort break**
16:00	**NGS - Principles & Platforms** Prof Mohammad Ilyas - University of Nottingham

Tuesday 29th September: Tissue Interrogation

08:30	**Day 1 recap (optional)** Prof Mohammad Ilyas - University of Nottingham
09:00	**NGS - Expression Analysis** Dr Christine Blancher - University of Oxford
09:30	**NGS** - **Worked Examples** Prof Richard Emes - University of Nottingham
10:00	**NGS - Interpreting the Data** Dr Tania Dottorini - University of Nottingham
10:30	**Comfort break**
11:00	**Nanopore Technology** Nadine Holmes - University of Nottingham
11:30	**NGS: Is it a Mutation or Not?** Dr Rachel Butler - North Bristol NHS Trust
12:30	**Industrial presentation**
12:45	**Lunch break**
13:45	**Industrial presentation**
14:00	**Mass Spectrometry Imaging** Dr Kristina Schwamborn - Institute of Pathology, TU Munich
14:30	**Digital Pathology** Dr Peter Hamilton - Philips Digital Pathology
15:30	**Comfort break**
16:00	**Rubbish In=Rubbish Out: The Importance of Template** Dr Abhik Mukherjee - University of Nottingham
16:30	**Molecular Diagnostics in Skin Cancers** Dr Asok Biswas - University of Edinburgh
17:15	**Day 2 recap (optional)**

Wednesday 30th September: Applied Molecular Diagnostics

09:00	**Molecular Diagnostics in CNS Cancers** Dr Zane Jaunmuktane - UCL Queen Square Institute of Neurology
09:45	**Molecular Diagnostics in Lymphoid Cancers** Prof Ming Du - University of Cambridge
10:30	**Comfort break**
11:00	**Molecular Diagnostics in Lung Cancers** Prof William Wallace - University of Edinburgh
11:45	**Molecular Diagnostics in Gynaecological Cancers** Prof Simon Herrington - University of Edinburgh
12:30	**Lunch break**
13:30	**Molecular Diagnostics in Male Genitourinary Cancers** Prof Clare Verrill - University of Oxford
14:15	**Molecular Diagnostics and Immuno-Oncology** Prof Gareth Thomas - University of Southampton
15:00	**Comfort break**
15:30	**Molecular Diagnostics in Breast Cancers** Prof Emad Rakha - University of Nottingham
16:15	**Molecular Diagnostics in Gastrointestinal Cancers** Dr Abhik Mukherjee - University of Nottingham
17:00	**Molecular Diagnostics in Mesenchymal Cancers** Dr Nischalan Pillay - UCL Cancer Institute
17:45	Day 3 Optional recap and close

Image Analysis Training School (IATS) course overview

Digital pathology aided by robust image analysis techniques has made great inroads in both diagnostics and research in histopathology. The implementation of whole slide scanning and advances in software and computer processing capacity has profoundly impacted not only routine clinical diagnosis but also molecular testing including bio-banking, molecular profiling and companion diagnostic development. The school will take place entirely online this years and aims to:

- Provide a comprehensive overview of the current use of image analysis in pathology diagnosis and research including practical examples
- Address how potential problems in image analysis can be resolved
- How digital pathology can be integrated in the work-stream

The course is suitable for Trainee and Consultant Pathologists with little or no experience of image analysis and for non-clinical scientists/computer experts (who may have some experience with digital platforms) wishing to learn more about the techniques and application of image analysis. Teaching will be delivered in the form of live online lectures, with Q&As and interactive elements.

Dates: Thursday 1st & Friday 2nd October 2020
Venue: The course will be delivered entirely online
CPD: The course has been awarded 13 CPD points by the Royal College of Pathologists.

Registration

Registration is free of charge for our Indonesian guests as part of this project/fund. The course will be delivered entirely online, allowing flexibility to join for all or just part of the course depending on your interests and availability.

Not only will your registration give you access to the full programme (details on next page) you will also get access to:

- Recordings of all the lectures from the course for 1 year from the 8th October 2020.

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IATS Programme

Thursday 1st October

Basic principles of image analysis & research applications

08:55	**Introduction** Prof Mohammad Ilyas; University of Nottingham, UK
09:00	**Basics of digital imaging including lexicons** Prof Vincenzo Della Mea; University of Udine, Italy
09:45	**Quantitative histo-morphometry - Segmenting tissue compartments in H&E & IHC images** Dr Alain Pitiot, Ilixa Ltd, Ludwig Boltzmann Institute, University of Nottingham
10:30	**Spatial reasoning for histological imaging** Prof Gabriel Landini, University of Birmingham, UK
11:15	Comfort break
11:45	**Deep learning and diagnostic pathology** Prof Vincenzo Della Mea; University of Udine, Italy
12:30	Lunch break
13:30	**Assessing immunohistochemistry - Scoring methods and pitfall** Dr Abhik Mukherjee, University of Nottingham, UK
14:15	**Digital Intelligence for Tissue Pathology** Prof Arvydas Laurinavičius, VUHSK, Vilnius, Lithuania
15:00	Comfort break
15:30	**Histogenic molecular mapping - Multivariate analysis of IHC biomarkers** Dr Alain Pitiot, Ilixa Ltd, Ludwig Boltzmann Institute, University of Nottingham
16:15	**Strategies and demands for digital pathology workflow integration** Dr Liron Pantanowitz: UPMC, Pittsburgh, USA
17:00	**Close**

Friday 2nd October
Diagnostic applications

09:00	**Image analysis in digital pathology - What are the main challenges?** Prof Mohammad Ilyas, University of Nottingham, UK
10:00	**Image quality - Issues, techniques and assessment metrics** Dr Gloria Bueno, UCLM, Ciudad Real, Spain
10:30	Comfort break
11:00	**Scanner technology – What makes an ideal scanner?** Norman Zerbe, Charité, Universitätsmedizin Berlin
11:45	**Industrial presentations**
13:00	Lunch break
14:00	**The promise of computational pathology** Prof Nasir Rajpoot; University of Warwick, UK
14:30	**RCPath guidelines for implementing diagnostic digital pathology** Dr Ayeesha Azam
15:00	Comfort break
15:30	**Implementation of digital pathology – How to win the argument** Prof David Snead
16:30	**Close**

Get in touch

www.NMPN.info

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Newton Fund

Improving Clinical Outcome in Indonesia with a Novel diagnostic test for Colorectal Cancer (ICONICC)

35,000 cases of colorectal cancer (CRC) occur per annum in Indonesia with around 35% of cases occurring in patients under 50 years of age (compared to 5% in UK). They have poor outcomes and many cases will be inherited.

CRC is managed using surgery, with around 90% of cases also requiring chemotherapy. Standard therapy is 5FU but if the patient has a feature called deficient Mismatch Repair (dMMR), they will not respond and may do worse. They may respond to alternatives e.g. Irinotecan.

There is a need to identify (i) cases which are dMMR to prevent ineffective therapy and (ii) patients with inherited cancer to improve lives by early treatment. This project addresses BOTH of these.

Success will reduce the economic burden on the Indonesian health care system and remove the effects of loss of productivity. In this project, we will
(a) Implement a new molecular test to detect both dMMR and inherited form of CRC
(b) Perform a sophisticated analysis of CRCs: an in-depth analysis of CRC in young patients to explore disease biology
(c) Develop UK-Indonesia training schools and Focus Group Discussion (FGD) to promote knowledge exchange and adoption of new molecular test into clinical practice.

The expected impacts of this project include the commercialization and implementation of the new molecular test which will lead to the prevention of approximately 5000 cases per year of over treatment and ineffective chemotherapy, and detecting about 2450 inherited cases of CRC per year to allow the prophylactic therapy and surveillance of family members for early detection.

In addition, the project will also contribute to the upskilling of Indonesia health care and research staff in the field of molecular diagnostics to generate new data for the scientific community and new areas of research, particularly with regard to the high incidence of young patients with CRC in the country.

Newton Fund RISTEKDIKTI BRITISH COUNCIL INSTITUTIONAL LINKS NICRAT Nottingham-Indonesia Collaboration for Clinical Research and Training