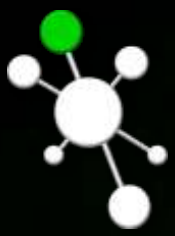

Nottingham Molecular Pathology Node

& The Pathological Society of Great Britain & Ireland

Part of the Newton Fund project Improving Clinical Outcome in Indonesia with a Novel diagnostic test for Colorectal Cancer (ICONICC)

Molecular Diagnostics & Image Analysis Training Schools 2020

Pathological Society
Understanding Disease — Guiding Therapy

The University of Nottingham
UNITED KINGDOM · CHINA · MALAYSIA

Newton Fund · RISTEKDIKTI · BRITISH COUNCIL · INSTITUTIONAL LINKS · NICCRAT

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) and Image Analysis Training Schools (IATS) will form part of this delivery. (Find out more about the Newton Fund project here)

Molecular Diagnostics Training School (MDTS) 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 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.

The MDTS aims to 1) teach the theory and utility / limitations of commonly used tests and 2) provide a comprehensive overview of the current use of molecular diagnostics

Dates: Monday 28th – Wednesday 30th September
Venue: Park Plaza Hotel in Nottingham City Centre, Maid Marian Way, Nottingham, NG1 6GD.

Image Analysis Training School (IATS) 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 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 formal lectures and interactive work projects.

The IATS aims to 1) provide a comprehensive overview of the current use of image analysis in pathology diagnosis and research including practical examples, 2) Address how potential problems in image analysis can be resolved and 3) look at how digital pathology can be integrated in the work-stream

Dates: Thursday 1st October & Friday 2nd October 2020
Venue: Park Plaza Hotel in Nottingham City Centre, Maid Marian Way, Nottingham, NG1 6GD
CPD: This programme has previously been awarded 13 CPD points by the Royal College of Pathologists. We will be applying for the same number of points in 2020.

Registration & accommodation

Registration is **free** for our Indonesian guests. In the first instance we are asking for expressions of interest. To register your interest in attending the course please email MS-NMPN@nottingham.ac.uk by no later than 24th July 2020. We will then contact you by email to confirm if you have a place on the course and will provide letters of invitation to support visa applications.

Registration will include attendance for the duration of both courses, refreshments and lunch every day, and access to course materials via our website following the course.

Accommodation is not included in the registration. If you require a room you can book this directly with the Park Plaza at a rate of £105.00 per night by calling +44333 400 6148 and quote code MOLE200920.

Molecular Diagnostics Training School 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.

13:30 Registration & refreshments

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

08:30 **Registration**

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 **Refreshments**

11:30 **The Highs / Lows and Data Interpretation of In-Situ Hybridisation**
Kate Martin - Nottingham University Hospitals NHS Trust

13:00 **Lunch and Refreshments**

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 **Refreshments**

16:00 **NGS - Principles & Platforms**
Prof Mohammad Ilyas - University of Nottingham

17:00 **Close**

20:00 Course dinner (optional): MemSaab Indian Restaurant

Molecular Diagnostics Training School Programme

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	**Refreshments**
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 and refreshments**
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	**Refreshments**
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)**
20:00	Course dinner (optional): Restaurant TBC

Molecular Diagnostics Training School Programme

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	**Refreshments**
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 & Refreshments**
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	**Refreshments**
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 Recap and close

Image Analysis Training School 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** Vincenzo Della Mea; University of Udine, Italy
09:45	**Quantitative histo-morphometry - Segmenting tissue compartments in H&E & IHC images** Dr Alain Pitiot, Illixa and Tissue Gnostics
10:30	**Spatial reasoning for histological imaging** Prof Gabriel Landini, University of Birmingham, UK
11:15	Refreshments
11:45	**Deep learning and diagnostic pathology** Vincenzo Della Mea; University of Udine, Italy
12:30	Lunch & refreshments
13:30	**Assessing immunohistochemistry - Scoring methods and pitfall** Dr Abhik Mukherjee, University of Nottingham, UK
14:15	**Pros & cons of automated quantification** Prof Arvydas Laurinavicius, VUHSK, Vilnius, Lithuania
15:00	Refreshments
15:30	**Histogenic molecular mapping - Multivariate analysis of IHC biomarkers** Dr Alain Pitiot, Illixa and Tissue Gnostics
16:15	**Strategies and demands for digital pathology workflow integration** Dr Liron Pantanowitz: UPMC, Pittsburgh, USA
17:00	**Close**

Image Analysis Training School Programme

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	Refreshments
11:00	**Scanner technology – What makes an ideal scanner?** Norman Zerbe, Charité, Universitätsmedizin Berlin
11:45	**Industrial presentations**
13:00	Lunch & refreshments
14:00	**The promise of computational pathology** Prof Nasir Rajpoot; University of Warwick, UK
14:30	**RCPath guidelines for implementing diagnostic digital pathology** Dr Ayesha Azam; University Hospitals Coventry & Warwickshire
15:00	Refreshments & panel discussion
15:30	**Implementation of digital pathology – How to win the argument** Prof David Snead; University Hospitals Coventry & Warwickshire
16:30	**Close**

Get in touch

Email	**MS-NMPN@nottingham.ac.uk**
Web	**www.NMPN.info**
Twitter	**@NMPNUK**

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.

This work was supported by a [Institutional Links] grant, ID [**527558574**], under the [Newton Institutional Link-Indonesia KLN Fund] partnership. The grant is funded by the UK Department for Business, Energy and Industrial Strategy and [Indonesia Ministry of Research Technology & Higher Education] and delivered by the British Council. For further information, please visit www.newtonfund.ac.uk