



Research
 Patient-Focused Clinically-Led
 Immunology CPD Phlebotomist Infection Agar
 Abnormalities Devices Culture
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 Triage BBV Biomarkers Endocrinology
 Quality Pathogens Specialist Practitioners Cellular Leading-Edge Technology
 Project Portfolio MLAs Flow Cytometry Acute
 The Halo Building ELISA Faculty of Education & Training
 Andrology Blood Innovation
 Accreditation FISH Multi-Discipline Rapid-Response Biomedical Science
 Information Technology Histopathology Microbiology Referral Assay
 Haematology Common Mutation Biobanking Non-Invasive Prenatal Testing
 Serology Drug-Resistance Biochemistry Haemoncology
 Disease Whole Blood Tissue Homocysteine EDTA New Development
 Cytology Laboratory Parasitology Pathology
 Mass-Spectrometry Antibodies Serum
 Haemostasis Blood Transfusion Reporting
 Sarcoma Accurate Toxicity Specialist Consultant PCR Workflows
 Confirmatory Testing DNA Liquid Chromatography Healthcare
 Immunodeficiency Partnerships
 Molecular Pathology Mycology

4TH ANNUAL RESEARCH & INNOVATIONS SYMPOSIUM



HEALTH SERVICES LABORATORIES

THURSDAY 22ND NOVEMBER 2018

@ THE WELLCOME COLLECTION

NHS
National Institute for Health Research



70
YEARS
OF THE NHS
1948 - 2018



OUR 4TH SYMPOSIUM

Few would have believed even 20 years ago that we would now be using smart phones to book restaurants, check in for flights, check the weather for the week ahead, do our banking transactions, monitor our health and wellbeing, schedule our lives, amongst many other applications... and of course make phone calls occasionally. It is a fact of life that we can do many complex tasks on a smart phone whilst at the same time many healthcare workers in the NHS are still writing paper notes, charts and request forms, very much as they were at the inception of the NHS 70 years ago.

Moreover, we often still can't see data in the GP records or the results of tests the GP might have ordered the week before. When reviewing patients, the complexity of the tests and data now available to doctors takes much longer than the typical consultation to assimilate, likewise the vast quantities of information being generated by research relevant to the condition being treated is beyond the capability of a human to absorb and process on a continuous basis. Furthermore, for some tests such as biopsy results and the results of imaging there are delays, often of days and sometimes of weeks before they are reviewed and reported. This is not a criticism, it is the consequence that reporting requires physical interpretation by a specialist pathologist or radiologist.

We are now on the cusp of a revolution in healthcare driven by the increasing digitisation of information, advanced analytical techniques such as artificial intelligence (AI), complemented by access to supercomputing that will allow huge amounts data to be analysed and interpreted in ways and with the speed that would have seemed in the realms of science fiction not so long ago. It is now possible to visualise an NHS in which clinical data and imaging are immediately analysed in an automated way, using AI, to process and interpret information, to aid clinical decision making by providing instantaneous estimates of probable diagnoses, recommended further tests and treatment options.

The key here is that these analyses are assisting the diagnostic process, not replacing the important role of health care professionals in delivering the treatments and care. But they will make the whole process faster, more efficient and more able to use the richness of the totality of the data to provide more personalised and bespoke clinical care, grounded in the best up-to-the minute evidence available.

Another opportunity is to use these new analytical methods to improve the operational efficiency of hospitals and other services in the NHS. Many organisations outside of the NHS are already using advanced analytical methods such as AI, to plan their services, monitor and react to changes in demand for their services, deploy staff and resources in an agile way to match predictable variation in demand, and for scheduling. These requirements are little different to those of the NHS in responding to demand for changes in patient flows to emergency care, to effectively deploy its staff and resources and manage its scheduling of appointments etc.

The NHS already makes use of the enormous amounts of data it collects every day, analysing the data to monitor and report on the effectiveness of its delivery of services. The step change visualised here, is not in the collection of data, we do that already, but in the methods used to analyse and intelligently interpret that data in real time to transform the efficiency of the operation of the hospital as a whole and the care of patients as individuals. This is going to happen across the world and change healthcare for the better, the only question that remains is whether the NHS wants to lead or follow?

With outstanding hospitals and staff, partnership with world leading universities and institutes specialising in data science and AI, burgeoning activity in the UK life-sciences industry in AI, the NHS is well placed to lead.

Professor Bryan Williams

Chair of Medicine, UCL

Director of Research and the NIHR Biomedical Research Centre, UCLH

Chair of Research & Innovations Board, HSL

“We are now on the cusp of a revolution in healthcare driven by the increasing digitisation of information, advanced analytical techniques such as artificial intelligence(AI), complemented by access to supercomputing that will allow huge amounts data to be analysed and interpreted in ways and with the speed that would have seemed in the realms of science fiction not so long ago.”



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USEFUL EVENT INFORMATION

Thank you for attending the HSL Research & Innovations Symposium, 2018. We hope this will be an educational and enlightening day - and that you'll use the information you obtain in your daily work. Although we intend today to run in a relaxed manner, we have several polite requests to ensure the smooth running of the event.

Registration Desk

The first desk you will have seen when arriving at the venue is the event registration desk. This will be manned throughout the day so please visit here to pass on any feedback or to ask a question.

CPD Points

Recent changes to the IBMS system means that credits are no longer awarded. However you can still use your certificate of attendance towards your IBMS CPD diploma. It is important that you complete the CPD feedback forms, which will be given to you when registering for the symposium, if you wish to obtain these points. Certificates of attendance will be sent after the Symposium.

Poster Competition

HSL are once again holding a poster competition to showcase some of the work completed by our staff over the past 12 months. Posters can be found in the Dale Room which is situated through the doors beyond the auditorium entrance. We encourage all delegates to take the time to visit these posters. The results of the competition will be announced at the end of the event at 4pm.

Venue Times

We ask all delegates to adhere to the times shown on the itinerary. The Wellcome Collection are hosting another event directly after the HSL R&I Symposium has ended. Therefore we politely ask that all delegates, and staff have vacated the venue by 5:00pm.

Timings

The HSL Research & Innovations Symposium is a very busy event. There are 13 presenters as well as various exhibits and refreshment breaks to fit in during the day. May we politely ask that delegates arrive promptly at the venue to assist us in keeping to the timings of the event, which are printed on the back of this guide.

Photography

Both HSL and the Wellcome Collection ask that no photography is taken outside of the Auditorium or the trade show area. There will be an official photographer documenting the day. Some of these images will feature in the HSL newsletter and on the HSL website. If you wish to NOT be included in any photography, please mention this at the registration desk.



2017 poster winner Shirley Wambui with judge Wendy Leversuch



A full house listening to Adam Rosenthal's talk on the prevention of Cervical Cancer



Professor Michael Patton brings the 2017 event to a close

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SYMPOSIUM SPONSORS

HSL are delighted to invite a number of selected sponsors and partners to showcase their products at the 2018 symposium. All of our event sponsors have very generously donated towards two of HSL's chosen charities, MacMillan Cancer Support and NewLife. We hope that you will take the time to visit their respective trade stands during the regular break times throughout the event.



HOLOGIC

STAND 1: Hologic | www.hologic.com

Hologic is the developer, manufacturer, and supplier of the world's most operationally efficient solutions for molecular diagnostic testing and cervical screening. Our products include the Panther and Panther Fusion systems running the class leading Aptima assays for STI screening, viral load monitoring and respiratory sample testing. Hologic's complete cervical screening solution includes the ThinPrep Liquid Based Cytology system and the novel Aptima HPV E6/E7 mRNA test running on the Panther and Tomcat systems.



STAND 2: Roche | www.roche.co.uk

Roche, as global leader in diagnostics is pioneering this shift in our healthcare landscape. Through our unrivalled investment in research and development our novel and medically differentiated assays; our integrated systems; connected workflows and technologies, we are transforming laboratory practice now and forever. As we continue to innovate across the patient care pathway, we are pursuing our vision of making data available anytime and anywhere, delivering real value to healthcare systems.



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SCIENTIFIC

STAND 3: ThermoFisher Scientific | www.thermofisher.com

Thermo Fisher Scientific supplies innovative solutions for the world's Life Science and Healthcare industries. With applications that span the journey from pure research to translational research and Clinical Diagnostics space - from Inherited Disease, Infectious Disease, Oncology and Pharmacogenomics. Through our Applied Biosystems, Ion Torrent and Affymetrix brands amongst others, we help customers accelerate innovation and enhance productivity.



Werfen

STAND 4: Werfen | www.werfen.com

Werfen UK are global leaders in the fields of Haemostasis, Acute Care and Autoimmunity diagnostics. Our comprehensive product portfolios encompass instruments, software, reagents and service. The Company also offers a comprehensive menu of high quality test kits in the areas of connective tissue disease, coagulation (APS), gastrointestinal disorders, vasculitis, endocrine and autoimmune liver disease.



Leica

STAND 5: Leica | www.leicabiosystems.com

Leica Biosystems is a cancer diagnostics company and a global leader in workflow solutions, offering the most comprehensive portfolio from biopsy to diagnosis. Our mission of "Advancing Cancer Diagnostics, Improving Lives" is at the heart of our corporate culture. Our easy-to-use and consistently reliable offerings help improve workflow efficiency and diagnostic confidence.



Agilent

STAND 6: Agilent | www.agilent.com

Agilent is a leader in life sciences, diagnostics and applied chemical markets. The company provides laboratories worldwide with instruments, services, consumables, applications and expertise, enabling customers within the Food, Chemical and Energy, Environmental and Forensics, Pharmaceutical Diagnostics and Research sectors gain the insights they seek.

SYMPOSIUM SPONSORS

STAND 7: CliniSys | www.clinisys.co.uk



With more multi-site operations than any other LIMS provider in the UK, CliniSys has extensive experience of working with Trusts to develop and implement pathology networks to ensure that the investment in the network is realised in improved patient services and reduced costs. Some of these networks using the WinPath LIMS solution cover whole counties and are mission critical for maintaining a vital support service to ensure continuity of care for major hospitals, A&E Departments and emergency care.

STAND 8: Accelerate Diagnostics | www.acceleratediagnostics.com

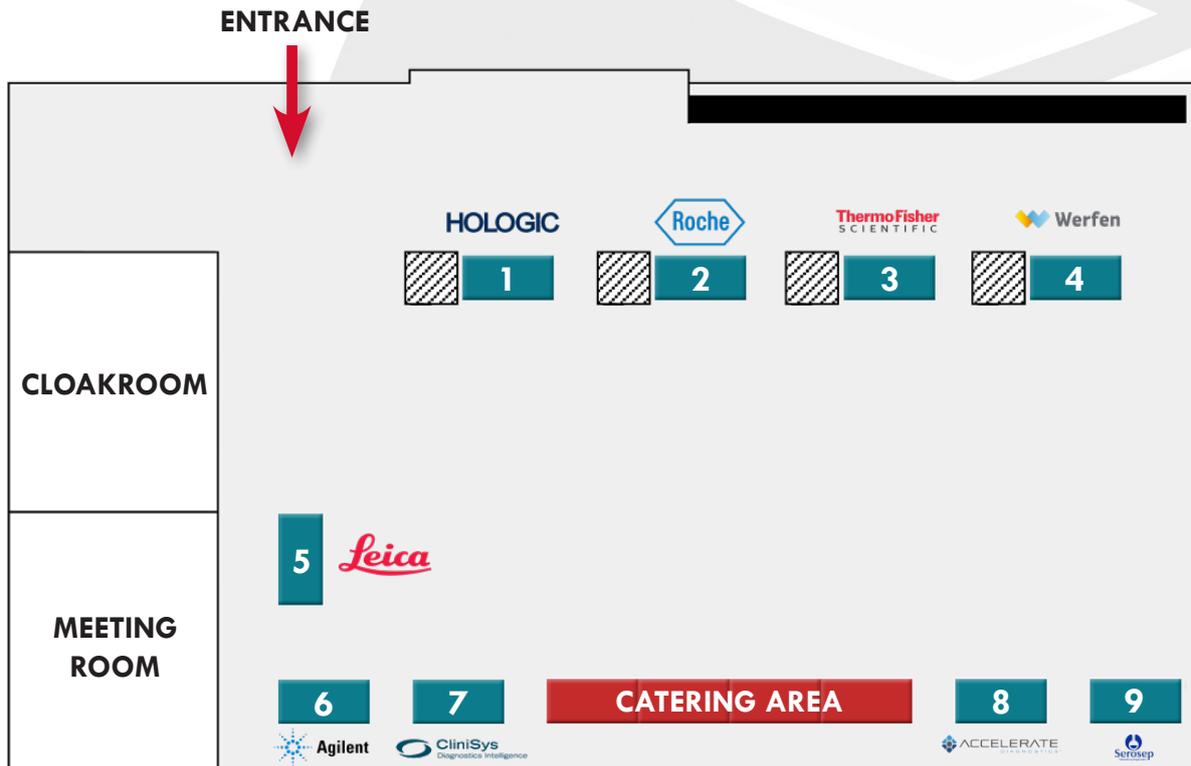


Accelerate Diagnostics is an in-vitro diagnostics company dedicated to providing solutions for the global challenge of antibiotic resistance and Healthcare Associated Infections. The company's fully automated ID/AST system, Accelerate Pheno™, and direct from positive blood culture kit, Accelerate PhenoTest™ BC, utilise proprietary molecular and phenotypic detection technologies which have the potential to substantially reduce the time to definitive, actionable antimicrobial susceptibility and MIC results by 1 to 2 days, compared with conventional methods.

STAND 9: Serosep | www.serosep.com/uk



In 1997 Serosep the company began distributing diagnostics solutions for Clinical Microbiology, Histopathology and Environmental Laboratories. The knowledge and experience gained over the years of manufacturing and distributing to clinical laboratories has allowed Serosep Ltd to understand and appreciate the daily struggles and restraints faced by laboratories on a daily base. Serosep developed a reputation early onwards as an innovative company that was constantly seeking to improve the lives of its customers by offering easy to use diagnostic solutions.



SPEAKING TODAY...



Genomic Profiling in Encephalitis @ 9:30am | Prof. Judy Breuer

(Co-director, Division of Infection & Immunity, Head of Research Department of Infection, UCL)

Next generation metagenomic sequencing allows detection of all pathogens in a single sample without the bias introduced by culture or PCR. In serious infections of the brain, ie. encephalitis, only around 50% are diagnosed with current PCR and autoantibody panels. We have used metagenomics on over 50 cases of encephalitis as well as other tissues to improve pathogen detection rates. Our data has uncovered previously undetected pathogens in 18 cases (~36%) and excluded pathogens in others, allowing the clinical team to increase immunosuppression without adverse consequences.



ELCID - IT Solutions in Microbiology @ 9:50am | Dr Emmanuel Wey

(Consultant Microbiologist and Honorary Clinical Senior Lecturer in Infection, Royal Free Hospital)

Dr Wey's talk will cover the development, deployment and use of the ELCID (Electronic Clinical Infection Database) application to address Governance, Quality Improvement and NHS England CQUIN requirements of the Infection Service at the Royal Free Hospital Foundation Trust.



The Gut Microbiome in Clinical Diagnosis @ 10:10am | Dr Cormac Gahan

(Senior Lecturer, School of Microbiology, University of Cork)

The healthy gut microbiota comprises approximately ten trillion bacterial cells made up of a combination of 2000 different bacterial phylotypes. Scientists are beginning to determine the microbial changes which correlate with the development of human disease, towards an understanding of certain gut microbial alterations which may contribute to disease risk. Today's presentation will focus upon our current understanding of the gut microbiota in health and in certain disease states, with a focus upon specific bacterial species which may form the basis of future diagnostic tests.



Molecular Tumour Diagnostics @ 11:15am | Dr Phil Bennett

(Head of Sarah Cannon Molecular Diagnostics)

There is a lot going on in the area of 'genomics' within the UK currently, much of this is largely being driven by the 100K Genome Project and NHS England's drive to form a limited number of super-hubs handling the vast majority of routine work. Whilst this approach may well yield significant advantages for rare diseases, the situation with regards to cancer, and especially solid tumours, is more complex. In this talk we will look at the different stages from patient to result and attempt to ask, 'politics' aside, what strategies are really supported by hard data and clinical need.



The Digital Histology Revolution @ 11:35am | Dr Marnix Jansen

(Consultant Histopathologist & Clinician Scientist, UCLH)

Conventional histopathology is currently undergoing a sea change overhaul with the introduction of digital histopathology. The digitisation of slides opens up tremendous opportunities to improve patient safety, trace pathologist and laboratory workflow, and facilitate distant and automated reporting. Various labs in the UK have now introduced digital histopathology workflows and some payer systems have moved to nationwide digital exchange systems. Today, Dr Jansen will discuss the current landscape in the UK and examine the lessons learnt so far.



Tackling Pancreatic Cancer @ 11:55am | Dr Geri Keane

(Clinical Research Fellow Hepatobiliary Medicine, UCLH)

Pancreatic ductal adenocarcinoma (PDAC) is the fourth most common cause of death in the UK. Five year survival of less than 4%, the lowest of the 20 most common adult cancers. There are currently no screening programs for pancreatic cancer, so it is usually diagnosed late and at an advanced stage when surgical resection is no longer possible. Incidences are increasing across Northern Europe so screening tools that detect pancreatic tumours at a premalignant or early stage are therefore urgently needed.



The Future of Cell Therapy @ 12:15pm | Prof. Mark Lowdell

(Professor of Cell & Tissue Therapy, Director of Cellular Therapeutics & Royal Free Hospital / UCL Cancer Biobank)

Adoptive immunotherapy of cancer has become the hottest topic in oncology over the past 3 years, culminating in the first licensed autologous cell medicine to be approved by NICE; Kymriah at a cost of just over £250k per treatment. This is one of two EMA-approved CAR-T medicines - the UK the first EU state to approve reimbursement by a national healthcare provider. This talk will use CAR-T as the exemplar for most adoptive cell therapies in cancer whilst explaining the alternative cell medicines in development and highlight the impacts this sea-change in approach to cancer treatment will have in UK hospitals.



Tracking Epidemics with Nanotechnology @ 1:40pm | Prof. Rachel McKendry

(Director iSense, Professor of Biomedicine & Nanotechnology at London Centre for Nanotechnology & Division of Medicine at UCL)

Prof McKendry's talk will explain key developments within the i-sense project to improve early diagnosis of infectious disease by harnessing the power of mobile phones, biomedical engineering, nanotechnology, genomics and big data. Key highlights include the i-sense flu project that tracks influenza rates through self-reported measures online, the development of low-cost, user-friendly, mobile phone-connected tests to accurately diagnose infections at point-of-care, and the embedding of diagnostic tools and digital technologies into new models of online patient pathways.



Rapid Diagnosis of Respiratory Pathogens @ 2:00pm | Dr Eleni Nastouli

(Consultant Virologist & Clinical Lead Virology, UCLH)

Availability of reliable results early in the patient's journey offers the potential to transform individual patient outcomes and decisively assist our efforts to minimise healthcare associated infections. I will be sharing our experience and evaluation data following the implementation of the Cepheid Xpert Xpress Flu/RSV test at UCLH and discuss how we complement this with translational research ideas at the Advanced Pathogen Diagnostics Unit at the Halo.



Rapid Diagnosis of Blood Stream Infections @ 2:20pm | Kerry Roulston

(Trainee Consultant Clinical Scientist - Infection Sciences, Royal Free Hospital)

Current diagnosis of bloodstream infection (BSI) utilises automated blood culture systems to detect bacteria and subsequent antimicrobial sensitivity testing using agar plates or semi-automated systems. This can take up to 48 hours, during which time the patient may be receiving inappropriate empiric antimicrobial therapy (either ineffective or inappropriately broad-spectrum). Rapid laboratory diagnosis of BSI has the potential to reduce morbidity and mortality and improve antimicrobial stewardship by directing earlier appropriately targeted antimicrobial therapy for the causative bacteria.



European Laboratory Networks @ 3:20pm | Dr Olivier Vandenberg

(Department of Microbiology, LHUB - ULB, Pôle Hospitalier Universitaire de Bruxelles)

Laboratory medicine is experiencing revolutionary advances in terms of molecular detection assays, automation, information systems linkage, and point-of-care testing. Today's talk will describe the experience of consolidated European laboratories in the development of biobanks including the main practical and the ethical issues of integrating patient samples in research projects. We also describe the role of large scale diagnostic platforms in the evaluation of new diagnostic tools and the advances in computational approaches for genomics and bioinformatics allowing better diseases surveillance.



The Research Hospital for the Future @ 3:40pm | Prof. Bryan Williams

(Chair of Medicine at UCL & Professor at UCL Institute of Cardiovascular Sciences)

The NHS makes use of the enormous amounts of data it collects every day, analysing the data to monitor and report on the effectiveness of its delivery of services. The step change visualised here, is not in the collection of data, we do that already, but in the methods used to analyse and intelligently interpret that data in real time to transform the efficiency of the operation of the hospital as a whole and the care of patients as individuals. This is going to happen across the world and change healthcare for the better, the only question that remains is whether the NHS wants to lead or follow?

WELCOME TO THE WELLCOME



Wellcome Collection is a free museum and library that aims to challenge how we all think and feel about health. Through exhibitions, collections, live programming, digital, broadcast and publishing, we create opportunities for people to think deeply about the connections between science, medicine, life and art.

It is part of the wider Wellcome Trust, which was established under Sir Henry Wellcome's will in 1936. Wellcome is a global charitable foundation, which aims to improve health for everyone by helping great ideas to thrive. Politically and financially independent, Wellcome supports scientists and researchers to take on big problems, fuel imaginations and spark debate.

Upon our 10th anniversary in 2017, we embarked on a period of reflection and of internal and external peer review. We created a document that sets out this combined mission for Wellcome Collection as a museum and library, our main objectives for the next five years, and how we are now organised to achieve them.

About the Trust

Sir Henry Wellcome (1853-1936), the founder of the Wellcome Trust, was one of the most fascinating men of his time. A businessman, collector and philanthropist, he was born in the American Wild West but ended his days as a knight of the British Realm. Wellcome co-founded a multinational pharmaceutical company that mastered modern techniques of advertising such as promotion, image and branding.

The wealth that Wellcome's company brought him was invested in amassing an astonishing collection of historical objects, which at the time of his death was larger than that of many of Europe's most famous museums. He also funded pioneering medical research. In his lifetime, scientists funded by Wellcome made great breakthroughs into understanding how our bodies work. After his death, Wellcome's will provided for the creation of the Wellcome Trust.

The Trust's Philosophy

Good health makes life better. We want to improve health for everyone by helping great ideas to thrive. That's why we support thousands of curious, passionate people all over the world to explore great ideas, at every step of the way from discovery to impact. Together, we can do more. We can drive reform to ensure that ideas can reach their full potential. And we can give focused, intensive support when we see real opportunities to transform lives. As an independent charitable foundation, we're willing to take risks. We combine the ability to act swiftly with long-term ambition.



The "Medicine Now" display at Wellcome Collection



One of the fine study areas at the Wellcome Collection



This collection is the lifelong work of Sir Henry Solomon Wellcome

POSTER COMPETITION ABSTRACTS

Andrina Dowling | Development of a Clinical Strategy in Diagnosing Idiopathic Thrombocytopenic Purpura (ITP) using Sysmex Fluorescent Platelet flow cytometry to Reduce Requirement for Bone Marrow Biopsy in Assessing Haemopoietic Cell Productivity

The calculation of reticulocytated platelets in circulation has been established as a powerful diagnostic tool in diagnosing immune thrombocytopenia (ITP), but relies on expensive and time-consuming flow cytometry techniques and is unsuitable for routine use. In addition, bone marrow biopsies are often used to confirm ITP diagnosis by excluding hypomegakaryocytic activity in patients. However, these are time and resource intensive and may pose unnecessary patient exposure to risk of bleeding. The aim of this research was to establish a meaningful comparison against the use of bone marrow biopsies in determining megakaryocytic activity in the bone marrow to confirm ITP diagnosis.

Donna Goulding | Challenges in Predicting Outcomes for Uncommon Sex Chromosome Abnormalities Detected Prenatally: Case Studies

The presence of sex chromosome abnormality is sometimes suspected prenatally at ultrasound but is often an incidental finding. The majority of cases detected prenatally comprise Monosomy X Turner Syndrome and Klinefelter Syndrome (which may also be mosaic, with a normal cell line present). Whilst there is some variability in clinical presentation, these syndromes are well understood. Rarer cases, in which there are structural abnormalities of the sex chromosomes, can make predictions less certain. The purpose of the study was to look at cytogenetic techniques for the prenatal diagnosis of sex chromosome abnormalities and to consider the challenges in predicting outcomes.

I. Mahamed, A. Ney, A. García, SP Pereira & P. Acedo | Establishment of light-based combination strategies for treating pancreatic cancer

Our main objective is to design multimodal strategies for PanCa therapy based on a combination of light-based therapies and clinically approved drugs to improve the therapeutic response of this disease. One of the strategies we are using is a technique called Photochemical Internalisation (PCI), which can significantly enhance the efficacy of cancer chemotherapy. Our aim is to assess the potential of these novel combination treatments to overcome PanCa drug resistance compared to conventional monotherapy.

Estela Memo | Rare case report of Mosaic DiGeorge/22q11.2 deletion syndrome detected in a Seven year old girl by Array-CGH and FISH studies

Deletion of the 22q11.2 region is associated with DiGeorge syndrome (also known as 22q11.2 deletion/VCFS & CATCH 22 syndrome). This is one of the most common microdeletions in man, with an incidence of 1 in 4000 live births. Mosaicism for microdeletions such as this is extremely rare with only a handful of cases been reported in the literature to date. Here we present a rare case report of mosaicism for the 22q11.2 microdeletion and discuss the disease pathology, clinical phenotype and the molecular cytogenetic techniques used in its detection.

Saqib Ashraf, Kushen Ramessur & Suranjith L Seneviratne | Patterns of ImmunoCap ISAC reactivity in a single London laboratory over nine years

Epidemiological studies indicate that the prevalence of allergic disorders such as rhinitis, asthma and urticaria have increased over the last decade in Western countries with a 700, 500 and 100% increase in hospital admission for anaphylaxis, food allergy and urticaria respectively. However, the geographic variation for allergen recognition and different sensitization routes between pollen-related and non-pollen related plant food allergy is still poorly characterised. Over a 9-year period (January 2009 – November 2017), the laboratory received over 3000 requests for ISAC testing. All the data generated was compiled together for each year and the patterns were analysed for each component.

Damion Cotterell | CRISPRs: A potential new antimicrobial?

CRISPR is a technology that has rapidly come to prominence over the last decade. The uses have been coined "a miracle" DNA fixing technique. Damion's poster is a short literature review on the potential CRISPR has as an antimicrobial agent, which is especially important as we head towards a world where antibiotic resistance is an ever growing concern.

POSTER COMPETITION ABSTRACTS

Anna Vassiliou, Catherine Martin, Jesse Stone, Aideen Killeen, Andrew Dawkins, Jonathan Ramsay & Sheryl Homa | The Relationship Between Seminal Oxidative Stress and Sperm DNA Fragmentation

It is generally accepted that oxidative stress is the underlying molecular mechanism for damage to sperm cell function, manifested in male infertility. Sperm DNA is a prime target for oxidative stress and has been associated with poor embryo development, failed implantation, failed IVF treatment cycles and recurrent miscarriage as indicated in the ESHRE Recurrent Pregnancy Loss 2017 Guideline. It is also likely responsible for many cases of unexplained infertility. The aim of the present study was to use two different methods for assessing oxidative stress levels in semen to determine whether the results correlated with sperm DNA fragmentation. The study was approved by the Research Advisory Group Ethics Committee at University of Kent.

Nada Abi-Aad | Is PCT a useful biomarker for improved diagnosis of Sepsis and to guide antimicrobial therapy in ICU?

Sepsis is one of the leading cause in ICU and mortality rate remain high despite current advances in clinical practices and technology. Timely diagnosis is important in reducing mortality and morbidity. PCT is identified as a useful marker for sepsis by its potential to differentiate sepsis from other non-infectious causes. However, currently the diagnostic accuracy of PCT as a biomarker remains inadequate and according to NICE, most studies were done in Switzerland, France, Belgium, Brazil and China; no UK studies were included NICE (Last accessed 5th November 2017). This study was conducted in the purpose to assess the potential of procalcitonin as a biomarker for infection to improve the diagnostic work-up of patients with bacterial infections and its influence on decisions regarding antibiotic therapy.

A. García, N. Santamaría & P. Acedo | Developing Novel Drug Nanocarriers to Improve Pancreatic Cancer Outcomes

Pancreatic cancer (PanCa) is a lethal disease due to late diagnosis and limited effectiveness of conventional treatments. Moreover, rates of incidence are steadily increasing. Thus, improved strategies for early diagnosis and more effective therapies are needed to improve long-term survival. It has been shown that disulfiram (DSF), a drug used in the treatment of alcohol abuse, is a promising antineoplastic agent and bivalent ions, such as copper (Cu), can enhance DSF therapeutic potential via reactive oxygen species generation. Due to the instability of DSF after administration, its encapsulation into delivery systems has appeared as a possible way to overcome its limitations enhancing efficacy. Therefore, we aim to encapsulate DSF into nanoparticles (NPs) based on natural polymers to improve clinical response in PanCa.

Kalana Patabendige | Antimicrobials and Biofilms

Since bacteria in biofilms and their antimicrobial tolerance were first observed by A. Van Leeuwenhoek in 1684, we have gone on to appreciate how difficult it is to combat biofilm-based infections. With each biofilm being different to another, high rate of microbial mutation and recalcitrance towards antimicrobials. All of these factors work hand in hand to enhance the survivability of the microbes within the biofilm. For instance, the thick extracellular matrix prevents rapid diffusion of antimicrobials to the main biomass of microbes, resulting in sub-inhibitory concentrations of antimicrobial and subsequent microbial tolerance/resistance mutations; but at the same time the matrix reduces the amount of nutrients getting to the microbes, which in turn causes some of the microbes to phase switch to their persister cell type. It is important to know how biofilms work, so new effective treatment methods can be formulated. Biofilm-based infections have the potential to cause pan-resistance and reoccurrence and is a microbial phenomenon that should be taken seriously.

Rona Alkaadi, Kushen Ramessur & Mark Atkins | Automating Rapid Plasma Reagin for Syphilis confirmation testing on the AIX 1000

The AIX 1000 analyser is a fully automated system for RPR testing that can test up to 192 samples a day, and can be interfaced with the laboratories LIMS system. At HSL the AIX 1000, is used as a confirmatory tool, processing up to 150 samples per day. This has transitioned the workload from being a fully manual assay to a semi-automated process. The use of the AIX 1000 has reduced the manual RPR work by 80%. TDL evaluated 184 samples against the Serology Reference Unit at the PHE Laboratory Colindale in order to identify the AIX 1000s reproducibility and reliability. The data showed >90% correlation at a titre 1:16 or below. The AIX 1000 is now used to screen RPR up to a titre of 1:16. Samples with RPR titres of greater than 1:16 on the AIX 1000 are manually titrated using Biokit RPR reditest.

IMAGES FROM 2017



The reception area in full swing



Dr Simon Edwards discussing the delivery of a sexual health service



Dr Chris McNamara presenting



A panel discussion on the future of Pathology training



Dr Robin Smith



2016 poster competition winner Anna Vassiliou turned presenter in 2017



Paul Griffiths and Michael Patton - Two professors in deep conversation!

EVENT ITINERARY

- 9:00am** **Doors Open, Registration, Coffee & Pastries**
- Morning Session 1: Advancing Molecular Diagnostics | Chair: Prof. Michael Patton**
- 9.20am** **Introduction to the Day**
Prof. Michael Patton (*Consultant Clinical Geneticist & Medical Director, HSL*)
- 9.30am** **Genomic Profiling in Encephalitis**
Prof. Judy Breuer (*Co-director, Division of Infection & Immunity, Head of Research Department of Infection, UCL*)
- 9.50am** **ELCID - IT Solutions in Microbiology**
Dr Emmanuel Wey (*Consultant Microbiologist and Honorary Clinical Senior Lecturer in Infection, Royal Free Hospital*)
- 10.10am** **The Gut Microbiome in Clinical Diagnosis**
Dr Cormac Gahan (*Senior Lecturer, School of Microbiology, University of Cork*)
- 10.45am** **Coffee Break & Posters**
- Morning Session 2: Developments in Cancer | Chair: Prof Finbarr Cotter**
- 11.15am** **Molecular Tumour Diagnostics**
Dr Phil Bennett (*Head of Sarah Cannon Molecular Diagnostics*)
- 11.35am** **The Digital Histology Revolution**
Dr Marnix Jansen (*Consultant Histopathologist & Clinician Scientist, UCLH*)
- 11.55am** **Tackling Pancreatic Cancer**
Dr Geri Keane (*Clinical Research Fellow Hepatobiliary Medicine, UCLH*)
- 12.15pm** **The Future of Cell Therapy**
Prof Mark Lowdell (*Professor of Cell & Tissue Therapy, Director of Cellular Therapeutics & Royal Free Hospital / UCL Cancer Biobank*)
- 12:45pm** **Lunch, Posters & Trade Show**
- Afternoon Session 1: Clinical Applications of Rapid Diagnostics | Chair: Dr Vanya Gant**
- 1.40pm** **Tracking Epidemics with Nanotechnology**
Prof Rachel McKendry (*Director iSense, Professor of Biomedicine & Nanotechnology at London Centre for Nanotechnology & Division of Medicine at UCL*)
- 2.00pm** **Rapid Diagnosis of Respiratory Pathogens**
Dr Eleni Nastouli (*Consultant Virologist & Clinical Lead Virology, UCLH*)
- 2.20pm** **Rapid Diagnosis of Blood Stream Infections**
Kerry Roulston (*Trainee Consultant Clinical Scientist - Infection Sciences, Royal Free Hospital*)
- 2.50pm** **Coffee Break & Posters**
- Afternoon Session 2: Future Collaboration | Chair: Prof. Michael Patton**
- 3.20pm** **European Laboratory Networks**
Dr Olivier Vandenberg (*Department of Microbiology, LHUB - ULB, Pôle Hospitalier Universitaire de Bruxelles*)
- 3.40pm** **The Research Hospital for the Future**
Prof Bryan Williams (*Chair of Medicine at UCL & Professor at UCL Institute of Cardiovascular Sciences*)
- 4.00pm** **Poster Prize Awards**
- 4.15pm** **Meeting Close**