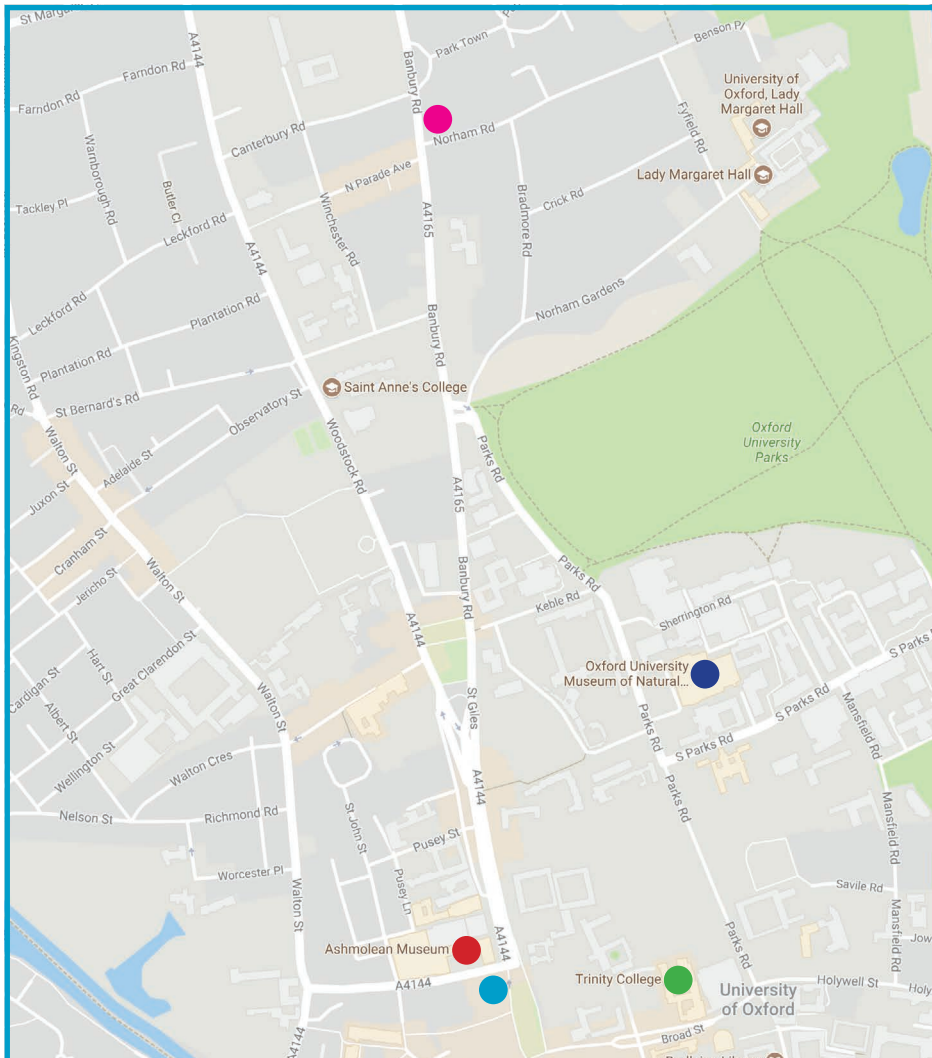


Oxford Street Map



- **Ashmolean Museum** Drinks reception 7–9pm, 11 September
- **Trinity College** Drinks reception and formal dinner 7–10.30pm, 12 September
- **Museum of Natural History** Drinks reception and formal dinner 7–10.30pm, 13 September
- **Randolf Hotel**
- **Cotswold Lodge Hotel**

BIG DATA INSTITUTE

Li Ka Shing Centre for Health Information and Discovery

East West Alliance Symposium

11th–14th September 2017



LI KA SHING FOUNDATION
李嘉誠基金會

Nuffield Department of
POPULATION HEALTH



Welcome letter



Dear Symposium Attendees,

It gives us great pleasure to welcome you to the 2017 Li Ka Shing Foundation East-West Alliance Global Symposium.

The East-West Alliance is a global network of universities and medical schools that are supported by the Li Ka Shing Foundation. The Alliance aims to foster knowledge exchange and collaboration among leading biological and biomedical institutions on high-impact research and educational projects. Each year the Li Ka Shing Foundation supports a symposium at one of the participating institutions. This year's symposium is being held at the recently opened Big Data Institute in the Li Ka Shing Centre for Health Information and Discovery at the University of Oxford.

The theme of this year's symposium is "Big Data in Health." Technological advances have exponentially increased the information we have about the causes and consequences of a wide variety of disease states. Some of this comes from health care records and some from analysing patient samples. The ability to interrogate these data efficiently plays an increasing role in efforts to understand disease and develop new treatments. Progress will depend on collaboration between experts across a wide variety of disciplines including molecular and cell biologists, epidemiologists, statisticians, computer scientists, bioinformaticians, engineers, and clinical scientists. In response, this year's event will cover sessions on electronic health records, imaging, genomics, mHealth, and population health.

We trust that you will find this symposium to be stimulating and enjoyable.

Aiden Doherty
Senior Research Fellow
Big Data Institute

Cecelia Lindgren
Senior Group Leader
Big Data Institute

Martin Landray
Deputy Director
Big Data Institute

Gil McVean
Director
Big Data Institute

Acknowledgements

Event coordinator:

Arabella Pratt, Nuffield Department of Population Health, University of Oxford

Sponsor:

Frieda Law, Li Ka Shing Foundation

Contributors:

Carol Mulligan-John, Big Data Institute, University of Oxford

Shelley Yates, Nuffield Department of Population Health, University of Oxford

Natasha Bowyer, Nuffield Department of Population Health, University of Oxford

Graham Bagley, Nuffield Department of Population Health, University of Oxford

Programme

Monday 11 September

Drinks Reception for invited guests (19.00) – Ashmolean Museum

Tuesday 12 September: Main Seminar Room, Big Data Institute

Opening (9.15–9.30) – John Bell (Oxford)

Session 1 (9.30–11.00) – Electronic health records (Chair: Naomi Allen, Oxford):

- **Neil Risch** (UCSF) – Genetic epidemiology research based in electronic health records
- **Ronald Ma** (Chinese University of Hong Kong) – Diabetes and Diabetic complications: Insights from the Hong Kong Diabetes Registry and Hong Kong Diabetes Biobank
- **Lisa Lix** (Manitoba) – Combining electronic medical records and administrative health data for chronic disease research and surveillance: More than the sum of parts
- **Muhammad Mamdani** (ICES, Toronto) – The Li Ka Shing Centre for Healthcare Analytics Research and Training: Driving impact through data

Session 2 (11.30–13.00) – Genomics-1 (Chair: Augustine Kong, Oxford):

- **Rasmus Nielsen** (Berkeley) – Association mapping using low-coverage sequencing in very large cohorts
- **Jianzhen Xu** (Shantou) – Big data, big opportunity: the genomic studies of esophageal squamous cell carcinoma at SUMC
- **Rudolf Fehrmann** (Groningen) – Harnessing transcriptomic tumour profiles from the public domain
- **David Marchant** (Alberta) – Respiratory Syncytial Virus transmission in cells and the community

13.00–14.00 Lunch + showcase of research at Oxford Big Data Institute

Session 3 (14.00–15.30) – Imaging (Chair: Steve Smith, Oxford):

- **Jennifer McNab** (Stanford) – Brain MRI biomarkers from neurons to networks
- **Pek-Lan Khong** (Uni of Hong Kong) – Multiparametric imaging in nasopharyngeal carcinoma, and opportunities for machine learning in medicine

- **Karla Miller** (Oxford) – Imaging in an era of multi-scale neuroscience: Where do we go from here?
- **Itamar Kahn** (Technion) – Aberrant oligodendrocyte Nf1 regulation of myelin structure: A multi-modal approach to dissecting brain disorders using high-resolution functional imaging

16.00–17.00 Social for invited guests (Organised walking tour of Oxford)

19.00–22.00 College dinner for invited guests (Trinity College)

Wednesday 13 September: Main Seminar Room, Big Data Institute

Session 4 (9.30–11.00) – Genomics-2 (Chair: Cecilia Lindgren, Oxford):

- **Daniel Rokhsar** (Berkeley) – The deep origins of human chromosomes
- **Peiyong Jiang** (Chinese University of Hong Kong) – Fragmentation pattern analysis of maternal and fetal cell-free DNA
- **Itzhak Kehat** (Technion, Israel) – Genome-wide analysis of cardiac and cardiac fibroblasts regulatory elements reveals combinatorial control of gene expression
- **S.Y. Leung** (University of Hong Kong) – Genomics of gastrointestinal tract cancer

Session 5 (11.30–13.00) – Population Health (Chair: Rory Collins, Oxford):

- **Prabhat Jha** (Toronto) – Avoidable adult mortality in India: Results from 2000–15 from the Million Death Study
- **Larry Svenson** (Alberta) – The use of big data to support health policy development
- **Lydia Drumright** (Cambridge) – Harnessing technology for scalable epidemiology & public health
- **Marcelo Urquia** (Manitoba) – Leveraging population data repositories to address health inequalities: Potential and challenges

13.00–14.00 Lunch + showcase of research at Oxford Big Data Institute

Session 6 (14.00–15.30) – mHealth (Chair: Lionel Tarassenko, Oxford):

- **Jessilyn Dunn** (Stanford) – Integrative personalised omics profiling and the digital physiome
- **Ronald Stolk** (Groningen) – A Dutch perspective on re-use of data in future health research
- **Michael Blum** (UCSF) – Hype and hope in AI driven healthcare transformation

- **Shu Ye** (Shantou) – The Shantou University Medical College big data on health project

Session 7 (16.00–17.00) Next Frontiers (Chair: Gil McVean, Oxford):

- **Angela Wood** (Cambridge) – Mobilising electronic health records for individualised dynamic prediction of chronic disease
- **Lord Drayson** (Drayson Technologies) – Personal air quality monitoring
- **Michael Botchan** (Berkeley) – Panellist
- **Richard Gilbertson** (Cambridge) – Panellist

19.00–22.00 Dinner for invited guests (Museum of Natural History)

Thursday 14 September: Board Meeting

Board meeting for invited guests (09.30–11.30) – Balliol College



Symposium Chair: Doctor Aiden Doherty

Senior Research Fellow, Big Data Institute, Li Ka Shing Centre for Health Information and Discovery, University of Oxford

Aiden Doherty is a senior research fellow at the University of Oxford. His research interest is in the development of computational methods to extract meaningful health information from complex and noisy sensor data in very large health studies. This builds on experience at Microsoft Research, Dublin City University (both in computing departments) and the University of Oxford (population health and biomedical engineering). In 2015 Aiden was one of only three Marie Skłodowska-Curie Actions COFUND Award winners (selected from ~9000 Marie-Curie fellowship holders between '07-'13) for his contributions to health sensor data analysis.



Symposium Chair: Professor Cecilia Lindgren

Senior Group Leader, Big Data Institute, Li Ka Shing Centre for Health Information and Discovery, University of Oxford

Prof. Cecilia Lindgren is a Senior Group Leader at the Big Data Institute (BDI), Li Ka Shing Centre for Health Information and Discovery at University of Oxford. She received a Ph.D. in Molecular Genetics from Lund University and continued her career as a visiting researcher at the Whitehead Institute, MIT, USA where she trained in statistical genetics. After post-doctoral work at the Karolinska Institute, she joined the Wellcome Trust Centre for Human Genetics at Oxford University, followed by three years as a Scholar in Residence at the Broad Institute of Harvard/MIT. She has previously been awarded the “Rising Star Award” from EASD (2010), the “ASO’s Obesity and Cardiovascular Health Award” (2011) and the “Leena Peltonen Prize for Excellence in Human Genetics” (2013). The last three years she has been listed amongst Thomson Reuters 100 “most highly cited researchers” in Molecular Biology and Genetics. Her research focuses on applying genomics to dissect the etiology of obesity related traits and their relationship with (female) reproductive health. She has recently received the Khwarizmi International Award (KIA) for her work on “Dissection of the Molecular Pathogenesis of Obesity and Fat distribution”.



Symposium Chair: Professor Martin Landray

Professor of Medicine and Epidemiology, Deputy Director, Big Data Institute, Li Ka Shing Centre for Health Information and Discovery, University of Oxford

Martin Landray's research seeks to further understanding of the determinants of common life-threatening and disabling diseases through the conduct of large-scale epidemiological studies (including clinical trials) and the widespread dissemination of both the results and the scientific methods used to generate them. He leads research programmes on the application of Big Data approaches to epidemiological and translational research, funded by the Medical Research Council and the National Institute for Health Research. The impact of such approaches can be seen in the results of his previous international clinical trials (involving over 65,000 patients) which have changed regulatory drug approvals, influenced clinical guidelines, and changed prescribing practice worldwide. Likewise, he has led the health informatics hub that underpins the 500,000 person UK Biobank study for over 10 years ago. A trained physician, he continues to practise clinical cardiology at Oxford University Hospitals NHS Foundation Trust.



Symposium Chair: Professor Gil McVean

Professor of Statistical Genetics, Director of the Oxford Big Data Institute, Li Ka Shing Centre for Health Information and Discovery, University of Oxford

Gil McVean FRS FMedSci is Professor of Statistical Genetics at the University of Oxford and Director of the Big Data Institute within the Li Ka Shing Centre for Health Information and Discovery. His research focuses on developing and applying statistical and computational methodologies to help understand the mechanisms shaping genetic variation in natural populations and the implications of genomic diversity for human health and disease. He has made contributions to our understanding of areas including recombination hotspots, historical patterns of natural selection, the male mutation rate, human genomic variation, the role of HLA in complex disease and genealogical processes. He has played a leading role in the HapMap and 1000 Genomes Projects and works on both humans and their pathogens, ranging from HIV to malaria. He is also co-founder of Genomics plc, which is developing and applying sophisticated analyses of massive integrated genomic and phenotypic datasets to learn about human biology. Gil McVean was awarded the 2010 Francis Crick Prize and the 2012 Weldon Memorial Prize for his work in statistical and population genetics and, in 2016, was made a fellow of the Royal Society and the Academy of Medical Sciences.



Opening Speaker: Professor Sir John Bell GBE, FRS

Regius Professor of Medicine, University of Oxford

Professor Sir John Bell GBE, FRS is Regius Professor of Medicine at Oxford University, and Chairman of the Office for the Strategic Coordination of Health Research. He served as President of the Academy of Medical Sciences from 2006 to 2011. As a Rhodes Scholar (1975–78), Sir John undertook his medical training in the UK and then went on to Stanford University, returning to the UK in 1987. His research interests are in the area of autoimmune disease and immunology where he has contributed to the understanding of immune activation in a range of autoimmune diseases. In 1993, he founded the Wellcome Trust Centre for Human Genetics, one of the world's leading centres for complex trait common disease genetics. In 2001, he was appointed non-executive director of Roche Holding AG and in 2008 he joined the Gates Foundation Global Health Advisory Board which he has chaired since 2012. Sir John was responsible for the working party that produced the highly influential Academy of Medical Sciences “Strengthening Clinical Research” report that highlighted the need for the UK to focus some of its attention on developing expertise in translational research. In December 2011, Sir John was appointed one of two UK Life Sciences Champions by the Prime Minister. He sits on the board of Genomics England Limited and chairs its Science Advisory Committee. He was appointed Knight Grand Cross of the Order of the British Empire (GBE) in the 2015 New Year Honours for services to medicine, medical research and the life science industry.

09.30—11.00

SESSION 1

Electronic health records

Chair: Naomi Allen, Oxford



Session 1 Chair: Naomi Allen, BSc MSc DPhil

Associate Professor in Epidemiology,
University of Oxford

Naomi Allen is an Associate Professor in Epidemiology and Senior Epidemiologist for UK Biobank. She is responsible for processing the linkage of routine electronic medical records into the study for long-term follow-up (including deaths, cancers, primary and secondary care data as well as other health-related datasets). She helps to co-ordinate the introduction of new enhancements into the resource (such as the development of web-based questionnaires and proposals for cohort-wide biomarker assays) and provides scientific advice to researchers worldwide wishing to access UK Biobank.



Session 1 speaker: Neil Risch PhD

Lamond Family Foundation Distinguished Professor in Human Genetics, University of California

Genetic epidemiology research based in electronic health records

Neil Risch, Ph.D. is the Lamond Family Foundation Distinguished Professor in Human Genetics, Director of the Institute for Human Genetics, and Professor and previous co-chair of the Department of Epidemiology and Biostatistics at the University of California, San Francisco. He is currently also the interim co-director of the Genomic Medicine Program at UCSF. For the past 20 years, he has also been an adjunct investigator at the Kaiser Permanente Northern California Division of Research. Dr. Risch's research area is genetic epidemiology and statistical human genetics. He has developed novel methods for discovering and characterizing genetic variants underlying disease predisposition, and has applied those methods to the discovery and characterization of genetic and environmental factors underlying a variety of disorders. His research also focuses on population genetics, particularly how genetic variation is distributed in the human population. Most recently, he has collaborated with investigators at the Kaiser Division of Research and UCSF on the development of a very large cohort used to study molecular and environmental factors involved in age-related disease and healthy aging. Dr. Risch is a member of the National Academy of Medicine, a fellow of the California Academy of Sciences, a fellow of the American Association for the Advancement of Science, former director and past President of the American Society of Human Genetics, and recipient of the Curt Stern Award from the American Society of Human Genetics.



Session 1 speaker: Ronald C.W. Ma, MB BChir (Cantab), FRCP (Edin, Lond), FHKCP, FHKAM

Chinese University of Hong Kong

Diabetes and Diabetic complications: Insights from the Hong Kong Diabetes Registry and Hong Kong Diabetes Biobank

Dr Ronald Ma completed his medical training at the University of Cambridge and trained in Internal Medicine in London, followed by endocrinology fellowship training in Hong Kong. Through support from a Croucher Foundation Fellowship, he furthered his research interest in the area of diabetic complications at the Joslin Diabetes Center, Harvard Medical School, Boston, USA, under the mentorship of Dr George King. Dr Ma's research focuses on the epidemiology and genetics of diabetes and its complications, gestational diabetes and polycystic ovary syndrome. He is currently leading a multi-disciplinary project team to identify novel molecular markers for diabetic complications, and is Principal Investigator of the Hong Kong Diabetes Biobank. He has published over 220 research articles in international peer-reviewed journals, and has received several awards, including the Young Investigator Award from the International Diabetes Epidemiology Group (IDEG), Ten Outstanding Young Persons Award, Hong Kong (2009), the Albert Renold Fellowship from the European Association for the Study of Diabetes (2010), and the Outstanding Fellowship of Faculty of Medicine from the Chinese University of Hong Kong (2014). He is a Past President of the International Diabetes Epidemiology Group (IDEG), the Hong Kong Society of Endocrinology, Metabolism and Reproduction (HKSEMR) and Diabetes Hongkong, and is currently a member of the Executive Board, the Asian Association for the Study of Diabetes (AASD) and Council Member of the International Society for Developmental Origins of Health and Disease (DOHaD). He has served on the World Health Organization Working Group on Science and Evidence to End Childhood Obesity (ECHO), and as co-chair of the International Federation of Gynaecology and Obstetrics (FIGO) Working Group on Adolescent, Preconception and Maternal Nutrition. Dr Ma serves on the editorial boards for PLoS Medicine, Obesity Reviews, Diabetic Medicine and the Journal of Diabetes Investigation.



Session 1 speaker: Lisa M. Lix, PhD P.Stat.

Professor of Biostatistics and Manitoba Research Chair in the Rady Faculty of Health Sciences at the University of Manitoba, Canada

Combining electronic medical records and administrative health data for chronic disease research and surveillance: More than the sum of parts

Dr. Lisa Lix is a Professor of Biostatistics and Manitoba Research Chair in the Rady Faculty of Health Sciences at the University of Manitoba, Canada. She is also Director of the Data Science Platform within the George and Fay Yee Centre for Healthcare Innovation, where she leads a team with expertise in biostatistics, bioinformatics, and information technology to build methodological capacity for patient-oriented research. Dr. Lix's areas of expertise include health services research methods, statistical methods for evaluating the quality of population-based electronic health databases, the analysis of repeated measures and longitudinal data, and robust statistical methods for patient-reported outcomes. She collaborates widely on projects about population health and the association between chronic disease and quality of life. Her research is funded by the Canadian Institutes of Health Research and the Natural Sciences and Engineering Research Council of Canada. She is on the Board of Directors of the Statistical Society of Canada and co-chairs the Scientific Committee of the Canadian Chronic Disease Surveillance System for the Public Health Agency of Canada.



Session 1 speaker: Muhammad Mamdani, PharmD, MA, MPH

Director of the Li Ka Shing Knowledge Institute of St Michael's Hospital, University of Toronto

The Li Ka Shing Centre for Healthcare Analytics Research and Training: Driving impact through data

Dr. Mamdani is the Director of the Li Ka Shing Centre for Healthcare Analytics Research and Training (CHART) of the Li Ka Shing Knowledge Institute of St. Michael's Hospital in Toronto. He is also Professor in the Leslie Dan Faculty of Pharmacy, the Department of Medicine of the Faculty of Medicine, and the Institute of Health Policy, Management and Evaluation of the Dalla Lana Faculty of Public Health. He is also adjunct Senior Scientist at the Institute for Clinical Evaluative Sciences (ICES). Dr. Mamdani also is a member of the Human Drug Advisory Panel of the Patented Medicine Prices Review Board (PMPRB) and is a co-Principal Investigator of the Ontario Drug Policy Research Network. In 2010, Dr. Mamdani was named among Canada's Top 40 under 40. Prior to joining the Li Ka Shing Knowledge Institute and St. Michael's Hospital, Dr. Mamdani was a Director of Outcomes Research at Pfizer Global Pharmaceuticals in New York. Dr. Mamdani's research interests include pharmacoepidemiology, pharmacoecconomics, and drug policy. He has published approximately 400 research studies in peer-reviewed medical journals, including leading journals such as the New England Journal of Medicine, the Lancet, the Journal of the American Medical Association, the British Medical Journal, and Annals of Internal Medicine.

Dr. Mamdani obtained a Doctor of Pharmacy degree (PharmD) from the University of Michigan (Ann Arbor) in 1995 and subsequently completed a fellowship in pharmacoecconomics and outcomes research at the Detroit Medical Center in 1997. During his fellowship, Dr. Mamdani obtained a Master of Arts degree in Economics from Wayne State University in Detroit, Michigan. He then completed a Master of Public Health degree from Harvard University in 1998 with a concentration in quantitative methods, focusing on biostatistics and epidemiological principles.

11.30–13.00

SESSION 2

Genomics –1

Chair: Augustine Kong, Oxford



Session 2 Chair: Augustine Kong

Professor of Statistical Genetics, Big Data Institute and Nuffield Department of Medicine, University of Oxford

Dr. Kong received his academic degrees from California Institute of Technology and Harvard University. He has held faculty positions at the University of Chicago, including tenured professorships in the Statistics Department and the Human Genetics Department from 1994 to 2000. For the last twenty years, he was a member of deCode Genetics in Iceland. Recently, he joined Oxford University and is now a professor of statistical genetics in the Big Data Institute and the Nuffield Department of Medicine.

His research interests include, for humans, pedigree analysis, gene mapping, selection, recombination, de novo and somatic mutations, haplotype phasing, and parent of origin specific genetic effects. His most recent research focuses on the genetic component to nurture, or the nature of nurture.



Session 2 speaker: Rasmus Nielson, PhD

Professor of Integrative Biology and Professor of Statistics, UC Berkeley

Association mapping using low-coverage sequencing in very large cohorts

Dr. Nielsen received his PhD from UC Berkeley in 1998, did postdoctoral research at Harvard University 1998–2000, and has since held faculty positions at Cornell University, University of Copenhagen, and UC Berkeley. He is currently Professor of Integrative Biology and Professor of Statistics at UC Berkeley and holds the Raymond and Beverly Sackler Endowed Chair of Computational Biology. Dr. Nielsen's research is on statistical and population genetic analyses of genomic data, in particular methods for detecting natural selection, describing population genetic variation, inferring population history, and methods for association mapping. Much of his current research concerns statistical analysis of next-generation sequencing data, both in the context of medical genetics and population genetics. Many of the methods he has developed are heavily used by other researchers, including the phylogeny based methods for detecting positive selection implemented in PAML, the methods for inferring demographic histories implemented in the IM and IMa programs, the method for detecting selective sweeps implemented in SweepFinder, and the methods for analysing Next Generation Sequencing (NGS) data implemented in ANGSD.



Session 2 speaker: Jianzhen Xu, PhD

Department of Bioinformatics, Shantou University Medical College

Big data, big opportunity: the genomic studies of esophageal squamous cell carcinoma at SUMC

Professor Xu received his PhD degree from Guangzhou Institute of Biomedicine and Health, Chinese Academy of Sciences, China. Currently, he leads the Computational Systems Biology Lab at Department of Bioinformatics, Shantou University Medical College.

His research has been focused onto topics in cancer genomics or systems biology. Specifically, he investigates novel noncoding RNAs in programmed cell death interaction network with both computational analysis and molecular and cellular methods.

Professor Xu a member of Chinese society for cell biology, Chinese society for bioinformatics, American association for cancer research. He has published more than 30 peer-reviewed scientific papers in international journals. Professor Xu's researches are supported by National Natural Science Foundation of China, Top-tier University Development Scheme, Department of Education, Guangdong Government and the Li KaShing Foundation. He is academic editor for PLOS ONE and reviewer for over 25 International peer reviewed journals.



Session 2 speaker: Rudolf Fehrmann, PhD

Medical Oncologist, Department of Medical Oncology, University Medical Center Groningen

Harnessing transcriptomic tumour profiles from the public domain

My practical and theoretical background enables me to take an integrative 'big data' approach to identify driver genetic alterations, genes and biological pathways that are relevant for the pathophysiological behaviour and treatment response of tumors and rapidly translate these findings to clinical practice. In addition to my training as a medical doctor, I completed one full year of Mathematics and Computer Science, after which I continued to obtain my MSc degree in Cognitive Science and Engineering. In parallel to my medical studies, I worked for several years as a bioinformatician at the Department of Genetics, UMCG. In 2010, I obtained my PhD on high dimensional data analysis for new insights into ovarian cancer phenotypes, after which I continued as an affiliated post-doc at the Departments of Genetics and Medical Oncology (UMCG). I followed the residency program in Internal Medicine / Medical Oncology and now work as a medical oncologist (staff member) at the department of Medical Oncology at the UMCG. In addition, I am a principal investigator at the Cancer Research Center Groningen and started building my own research group.



Session 2 speaker: David Marchant PhD

Assistant Professor and Canada Research Chair in Viral Pathogenesis, Li Ka Shing Institute of Virology, Department of Department of Medical Microbiology and Immunology, University of Alberta

Respiratory Syncytial Virus transmission in cells and the community

David J. Marchant earned his Ph.D. at the Wohl Virion Centre, University College London, UK. He completed his postdoctoral studies in cardiopulmonary virology in the Department of Pathology and Laboratory Medicine at the University of British Columbia, Canada. He is an Assistant Professor and Canada Research Chair in Viral Pathogenesis in the Li Ka Shing Institute of Virology, Department of Medical Microbiology and Immunology, at the University of Alberta. His research is deciphering multitasking roles for proteins during antiviral immunity, the host cell factors that mediate entry of respiratory syncytial virus (RSV) into cells and the genomics of RSV transmission and clade development in the community.

14:00–15:30

SESSION 3

Imaging

Chair: Steve Smith, Oxford



Session 3 Chair: Steve Smith

Professor of Biomedical Engineering, Head of the Analysis Group at Oxford University Centre for Functional Magnetic Resonance of the Brain, University of Oxford

Steve Smith is Professor of Biomedical Engineering and head of the Analysis Group at The Oxford University Centre for Functional Magnetic Resonance Imaging of the Brain (FMRIB). The Analysis Group, which he started in 1997, now comprises about 30 research fellows, postdocs, students and support staff, carrying out functional and structural brain image analysis and statistics research. The group has produced the brain image analysis software package FSL (FMRIB Software Library) which is widely used in many laboratories across the world. Recent personal research has concentrated on resting state networks, showing that these correspond closely to explicit functional networks as seen in task FMRI, showing new networks on the basis of distinct temporal dynamics, and most recently relating functional networks to behaviour and lifestyle. The FMRIB Analysis Group is playing a major role in the Human Connectome Project, UK Biobank Imaging, and the Developing Human Connectome Project.



Session 3 speaker: Jennifer A McNab, PhD

Assistant Professor in Radiology, Stanford University

Brain MRI biomarkers from neurons to networks

Dr. McNab is an Assistant Professor in Radiology at Stanford University. Her research is centered on the development of magnetic resonance imaging (MRI) acquisition strategies that yield new and/or improved images of the human brain. Dr. McNab's primary contributions are related to the use of diffusion MRI to interrogate brain tissue microstructure and structural connectivity. She has extensive experience with the most cutting-edge MRI technology, including the world's strongest human-MRI gradients (300 mT/m), highly-parallelized phased-array RF coils (64-channels) and ultra-high-magnetic field (7T). Dr. McNab's lab also has a strong focus on direct comparisons of MRI and advanced histology, such as CLARITY, to better understand how specific biological components contribute to MRI contrast. Dr. McNab's training includes a Bachelor of Science in Physics from the University of British Columbia, a Master of Science in Medical Biophysics from the University of Western Ontario, a D.Phil. from Oxford in Clinical Neurology and a post-doctoral fellowship at Harvard Medical School/Massachusetts General Hospital.



Session 3 speaker: Pek-Lan Khong

Professor and Head, Department of Diagnostic Radiology,
The University of Hong Kong

Multiparametric imaging in nasopharyngeal carcinoma, and opportunities for machine learning in medicine

Professor Pek-Lan Khong is Clinical Professor of Radiology and serves as the Head of Department of Diagnostic Radiology, The University of Hong Kong, and Chief-of-Service, Department of Medical Imaging, The University of Hong Kong-Shenzhen Hospital.

Professor Khong received her paediatric radiology training in The Birmingham Children's Hospital, U.K. and Boston Children's Hospital, U.S.A. Subsequently, she obtained her research post-graduate Doctor of Medicine (MD) degree in The University of Hong Kong. Her research focus in paediatric neuroradiology includes clinical applications of diffusion-MR imaging and translational research in neurological diseases. In the recent years, Professor Khong's research interest has extended to include molecular imaging and hybrid-PET imaging in oncological diseases.

She is a member of the International Society for Strategic Studies in Radiology (ISSSR), Fellow of the International Society of Magnetic Resonance in Medicine (ISMRM), and Fellow of the International Cancer Imaging Society (ICIS). She sits on the editorial board of the journal Pediatric Radiology, and is a grant review board member of the Health and Medical Research Fund (HMRF), Research Council of the Food and Health Bureau, and member of the Radiological Protection advisory Group (RPAG), The government of the HKSAR.

Under her leadership, the Department operates research MRI units, PET/CT unit, Medical Cyclotron, and recently, a pre-clinical PET/MRI research lab. Published works include 200 original articles in international peer-review journals on topics of Paediatric Neuroradiology, hybrid-PET imaging in Oncology, and Radiological Protection in Medicine. She has delivered more than 80 invited lectures in regional and international conferences/symposia on the above topics.



Session 3 speaker: Karla Miller

Biomedical Engineer, Wellcome Trust Centre for Integrative Neuroimaging, University of Oxford

Imaging in an era of multi-scale neuroscience: Where do we go from here?

Karla Miller is a biomedical engineer at the Wellcome Centre for Integrative Neuroimaging (previously FMRIB) in Oxford. She is interested in developing novel MRI techniques for brain imaging, understanding their relationship to neurobiology, and deploying these techniques to enable novel neuroscience investigations. Current themes in her work include big data, integrated acquisition and analysis, and relating MRI to microscopy.



Session 3 speaker: Itamar Kahn, PhD

Assistant Professor, Technion Faculty of Medicine, Israel

Aberrant oligodendrocyte Nf1 regulation of myelin structure: A multi-modal approach to dissecting brain disorders using high-resolution functional imaging

Itamar Kahn received a bachelor's degree from Ben-Gurion University of the Negev in Mathematics and Computer Science and a doctorate from Massachusetts Institute of Technology (MIT) in 2005 in Brain and Cognitive Sciences under the supervision of Anthony Wagner. Itamar was subsequently a post-doctoral fellow at Harvard University from 2006–2010 under the supervision of Randy Buckner and Chris Moore. Since 2010, Itamar is an assistant professor at the Technion Faculty of Medicine.

09.30–11.00

SESSION 4

Genomics – 2

Chair: Cecilia Lindgren, Oxford



Session 4 Chair: Professor Cecilia Lindgren

Senior Group Leader, Big Data Institute, University of Oxford

Prof. Cecilia Lindgren is a Senior Group Leader at the Big Data Institute (BDI), Li Ka Shing Centre for Health Information and Discovery at University of Oxford. She received a Ph.D. in Molecular Genetics from Lund University and continued her career as a visiting researcher at the Whitehead Institute, MIT, USA where she trained in statistical genetics. After post-doctoral work at the Karolinska Institute, she joined the Wellcome Trust Centre for Human Genetics at Oxford University, followed by three years as a Scholar in Residence at the Broad Institute of Harvard/MIT. She has previously been awarded the “Rising Star Award” from EASD (2010), the “ASO’s Obesity and Cardiovascular Health Award” (2011) and the “Leena Peltonen Prize for Excellence in Human Genetics” (2013). The last three years she has been listed amongst Thomson Reuters 100 “most highly cited researchers” in Molecular Biology and Genetics. Her research focuses on applying genomics to dissect the etiology of obesity related traits and their relationship with (female) reproductive health. She has recently received the Khwarizmi International Award (KIA) for her work on “Dissection of the Molecular Pathogenesis of Obesity and Fat distribution”.

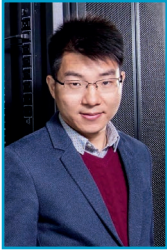


Session 4 speaker: Daniel Rokhsar, PhD

Professor of Genetics, Genomics and Development, Berkeley

The deep origins of human chromosomes

Prof. Rokhsar was trained as a condensed matter physicist; he earned his PhD in physics from Cornell in 1987, carried out postdoctoral research at the IBM Watson Research Center from 1987–89, and joined the physics faculty at UC Berkeley in 1989. In the mid-1990's, Rokhsar's interests shifted from physics to biology, and his research focused on protein dynamics and developmental biology, founding the Department of Theoretical Biology at the Lawrence Berkeley National Laboratory in 1998. In 2000 he became the founding Associate Director of Computational Genomics at the US Department of Energy Joint Genome Institute, where he led the computational efforts directed towards the sequencing, annotation, and analysis of three human chromosomes, and has served the Institute in various capacities, leading the sequencing and analysis of over two dozen animal, plant, and microbial genomes. Since 2002 he has been a Professor of Genetics, Genomics, and Development at Berkeley. Rokhsar's research is focused on understanding the origin, evolution, and diversity of animals and plants by combining computational genome analysis, sequence-based genetic methods, and comparative developmental biology, and has revealed the deep ancestry of genes and genomic structure. A more recent interest is the genomic diversity within and among species.



Session 4 speaker: Peiyong Jiang, PhD (CUHK)

Assistant Professor and Bioinformatician, Department of Chemical Pathology, The Chinese University of Hong Kong

Fragmentation pattern analysis of maternal and fetal cell-free DNA

Peiyong Jiang is currently an assistant professor and a bioinformatician at the Department of Chemical Pathology, The Chinese University of Hong Kong. He received his bachelor's degree in bioengineering from Huzhou Teachers College in 2006. During that time, he was trained in biology, biochemistry, genetics, biostatistics and programming languages. Afterwards, he received his master's degree of crop genetics and breeding from Huazhong Agricultural University in 2009. During the time of pursuing master's degree, he was mainly trained in advanced genetics, statistics and bioinformatics. His research work involved the plant microRNA prediction *in silico*, particularly using machine learning algorithm to explore Next Generation Sequencing (NGS) data. Thereafter, he received his Ph.D. in Chemical Pathology from The Chinese University of Hong Kong in 2012 and had postdoctoral training at the Department of Chemical Pathology, The Chinese University of Hong Kong from 2012 to 2015. Since he joined the department, he has been working on bioinformatics. With a multidisciplinary background of genomics, bioinformatics, computational biology and statistics, he has a long-standing research interest in NGS-based bioinformatics data analysis as well as its applications in clinical development and use, typically, regarding the cell-free DNA based non-invasive pre-prenatal diagnosis and cancer detection.



Session 4 speaker: Izhak Kehat MD, PhD

Genome-wide analysis of cardiac and cardiac fibroblasts regulatory elements reveals combinatorial control of gene expression

Research focus

Congestive heart failure (CHF) is a worldwide epidemic. It is estimated, for example, that in Europe around 10 million people are suffering from this disease. Despite some progress in medical treatment within the last 10 years, morbidity and mortality of CHF are still high: 70–80% of patients suffering from heart failure will die within the next 8 years.

Our lab studies the molecular mechanisms responsible for cardiac hypertrophy and remodeling during heart failure. Specifically, we focus on the molecular signals, genome organization and the epigenetic modifications that control gene expression in the heart and on the mechanisms that differentially control concentric and eccentric cardiac growth in order to suggest targets for treating heart failure. We are also interested in heart valve disease and valve calcifications and in ways to inhibit this devastating process. We use advanced molecular biology, physiology, genomics, cell culture techniques and gene modified mice to address these questions.



Session 4 speaker: Professor Suet Yi Leung

Associate Dean (Research), Li Ka Shing Faculty of Medicine at The University of Hong Kong

Genomics of gastrointestinal tract cancer

Professor Suet-yi Leung is the Associate Dean (Research), Li Ka Shing Faculty of Medicine at The University of Hong Kong. She is also the YW Kan Endowed Professor in Natural Sciences and Chair in Gastrointestinal Cancer Genetics and Genomics in the Department of Pathology. Her research interests are focused on the molecular genetics, epigenetics and genomics of gastric and colorectal cancers, and their applications in molecular classification and genetic diagnosis to facilitate cancer prevention and treatment. Using genomic technologies, including next generation sequencing, her group has identified many novel gastric cancer driver genes, including ARID1A, RHOA and RNF43, and defined the genomic and epigenomic landscapes of various molecular subtypes of gastric cancer. Her team has also first described the heritable germline methylation of the MSH2 gene promoter as a cause of Lynch Syndrome, and subsequently identified EPCAM deletion as the cause of MSH2 methylation, the latter has become a standard genetic diagnosis test for Lynch Syndrome. Her team also uncovered the critical role of BRAF and RNF43 in the serrated neoplasia pathway, provided critical molecular data to support the pathogenic role of RNF43 germline mutation in Serrated Polyposis Syndrome families. The long term goal of her laboratory is to identify novel genes that are important for the causation of gastric and colorectal cancer, and to explore the use of some of these genes as markers for early detection, prognostication or drug targets.

11:30–13:00

SESSION 5

Population Health

Chair: Rory Collins, Oxford



Session 5 Chair: Professor Sir Rory Collins FRS FMedSci

Head of the Nuffield Department of Population Health, University of Oxford and BHF Professor of Medicine and Epidemiology

Professor Collins is a cardiovascular epidemiologist and clinical trialist. He studied Medicine at St Thomas's Hospital Medical School in London, and Statistics at George Washington University in Washington DC and at the University of Oxford.

He came to Oxford in 1981 to work with Richard Peto, Peter Sleight and Salim Yusuf running the ISIS "megatrials" of the emergency treatment for heart attacks. Those trials showed that clot-dissolving and clot-preventing treatment could more than halve mortality, and these treatments rapidly became part of routine care. In addition, the ISIS trials encouraged the use of much larger trials than had been customary in order to obtain reliable evidence about the effects of cardiovascular treatments.

Since the early 1990s, Rory has been conducting large randomized trials of the effects of modifying blood levels of cholesterol. Those trials have contributed to showing that lowering LDL-cholesterol intensively with statin therapy safely reduces the risk of heart attacks and strokes among a very wide range of individuals. As a consequence, statins are used extensively worldwide.

He became Principal Investigator of the UK Biobank study in September 2005. Involving 500,000 participants, it is the largest deeply characterized prospective epidemiological study of disease in the world, and is being made available for any type of health-related research by researchers worldwide.

In 2013, Rory set up the Nuffield Department of Population Health at Oxford University, which he leads. He was elected to the Fellowship of the UK Academy of Medical Science in 2004 and of the Royal Society in 2015, and was knighted by the Queen for services to Science in 2011.



Session 5 speaker: Prabhat Jha, OC, MD, DPhil, FCAHS

Endowed Professor in Global Health and Epidemiology, University of Toronto, Canada Research Chair, Dalla Lana School of Public Health

Avoidable adult mortality in India: Results from 2000-15 from Million Death Study

Professor Prabhat Jha is an Endowed Professor in Global Health and Epidemiology at the University of Toronto and Canada Research Chair at the Dalla Lana School of Public Health, and the founding Director of the Centre for Global Health Research.

Professor Jha is a lead investigator of the Million Death Study in India, which quantifies the causes of premature mortality in over 2 million homes. His publications on tobacco control have enabled a global treaty now signed by over 180 countries. He founded the Statistical Alliance for Vital Events, which focuses on reliable measurement of premature mortality worldwide.

Earlier, Professor Jha served in senior roles at the World Health Organization and the World Bank. He was made an Officer of the Order of Canada in 2012. Professor Jha holds an M.D. from the University of Manitoba and a D.Phil. from Oxford University, where he studied as a Rhodes Scholar.



Session 5 speaker: Larry Svenson, PhD, FRSPH

Associate Professor with the Division of Preventive Medicine,
University of Alberta

The use of big data to support health policy development

Larry Svenson is an Associate Professor with the Division of Preventive Medicine at the University of Alberta. He is also the Provincial Health Analytics Officer and Executive Director for Analytics and Performance Reporting at the Alberta Ministry of Health. As the Provincial Health Analytics Officer, he is responsible for working collaboratively with stakeholders to strengthen the analytic capacity of Alberta's health sector, and the promotion of a data driven culture. He brings over 25 years of experience in the use of administrative health data in policy development and evaluation, and is a strong advocate for open data initiatives.



Dr. Lydia N. Drumright, PhD

University Lecturer in Clinical Informatics, NIHR Career Development Fellow, University of Cambridge

Harnessing technology for scalable epidemiology & public health

Dr Lydia Drumright, MPH PhD, is the University Lecturer in Clinical Informatics at the University of Cambridge and an infectious disease epidemiologist. She directs research in Clinical Informatics in Cambridge, concentrating on developing infrastructure for research through harnessing and utilising data from the fully integrated, electronic health record system, eHospital, at Cambridge University Hospitals NHS Foundation Trust and establishing methods to integrate research findings back into clinical care. Her work on transmission dynamics of infectious disease has spanned multiple disease systems, including HIV, viral hepatitis, influenza and healthcare-associated infections such as norovirus, and employs multiple epidemiological strategies, including bio-behavioural surveys, geographic analyses, qualitative interviews, molecular epidemiology and analysis of routinely collected clinical data and information from new diagnostic platforms. More recently she has combined many of these strategies to create a multidisciplinary epidemiological approach incorporating modern technologies to advance understanding of the natural history of infection and create clinical and public health interventions. Dr Drumright is deputy-Head of the Cambridge Infectious Diseases Interdisciplinary Research Centre, Chair of the Central Cambridge Research Ethics Committee and co-developer and director of Cambridge Clinical Informatics (<http://www.clinicalinformatics.group.cam.ac.uk>), an interdisciplinary centre that has developed data governance, infrastructure, and tools to harness routinely collected clinical data and residual samples for research and the electronic health record for interventions.



Session 5 speaker: Marcelo Urquia

Epidemiologist, Research Scientist, Manitoba Centre for Health Policy,
University of Manitoba

Leveraging population data repositories to address health inequalities: Potential and challenges

Marcelo Urquia is an epidemiologist and research scientist at the Manitoba Centre for Health Policy, University of Manitoba, Canada. He is also with the Centre for Urban Health Solutions (CUHS), in the Li Ka Shing Knowledge Institute, St. Michael's Hospital, the Dalla Lana School of Public Health, University of Toronto and the Institute for Clinical Evaluative Sciences in Toronto. His research interests focus on health inequalities affecting vulnerable populations such as immigrants and ethnic minorities around birth, childhood and reproductive life. He currently leads projects in partnership with various immigrant and refugee community organizations. He is also interested in the application of novel methods for the analysis of linked administrative data-bases. He currently holds a Canada Research Chair in Applied Population Health.

14:00–15:30

SESSION 6

mHealth

Chair: Lionel Tarrasenko, Oxford



Session 6 Chair: Professor Lionel Tarassenko CBE FREng FMedSci

Professor of Electrical Engineering, University of Oxford

Professor Lionel Tarassenko is Professor of Electrical Engineering at the University of Oxford. He was the driving force behind the creation of the Institute of Biomedical Engineering, which he directed from its opening in April 2008 to October 2012. He is a Fellow of the Royal Academy of Engineering (2000), and a Fellow of the Academy of Medical Sciences (2013). He was made a CBE for services to engineering in 2012.

In 1996, he received a British Computer Society Medal for his work on analysis of sleep disorders. His work on mobile phones for healthcare was awarded the E-health 2005 Innovation Award for “best device to empower patients”. He received the 2006 Silver Medal of the Royal Academy of Engineering for his contribution to British engineering leading to market exploitation and he won the Institute of Engineering & Technology IT Award, also in 2006. In 2010, he gave the Vodafone lecture on m-health at the Royal Academy of Engineering and the Centenary Lecture on Biomedical Engineering at the Indian Institute of Science in Bangalore. He received the 2015 Martin Black Prize for the best paper in Physiological Measurement.

Professor Tarassenko is a world-leading expert in the application of signal processing and machine learning to medical systems, with a strong track record in translation to clinical medicine. He is the author of 210 journal papers, 180 conference papers and 3 books. He holds 30 granted patents and has founded four University spin-out companies, all in the med tech sector. He is also a Director of the University of Oxford’s technology transfer company, Oxford University Innovation. He is the current Head of the Department of Engineering Science and a member of the University Council, the University of Oxford’s governing body.



Session 6 speaker: Jessilyn Dunn, PhD

Mobilize Distinguished Postdoctoral Fellow, Stanford University

Integrative personalised omics profiling and the digital physiome

Dr. Jessilyn Dunn is a Mobilize Distinguished Postdoctoral Fellow at Stanford University in the US National Institutes of Health Big Data to Knowledge Center of Excellence, where she works jointly with Drs. Michael Snyder and Scott Delp in the Departments of Genetics and Bioengineering. Her research interests are in mobile health and biomedical data integration; her work includes multi-omics integration and digital biomarker discovery. Jessilyn completed her PhD at Georgia Tech and Emory University and her BS at Johns Hopkins University, both in Biomedical Engineering. Dr. Dunn has worked as a visiting scholar at the US Centers for Disease Control and Prevention and at the National Cardiovascular Research Institute in Madrid, Spain. Her work has been internationally recognized and covered by media outlets from the US National Institutes of Health Director's Blog and the American Heart Association Science News to Time, US News and World Report, and Gizmodo UK.



Session 6 speaker: Ronald Stolk

Director, Center for Information Technology / CIO Professor of Clinical Epidemiology

A Dutch perspective on re-use of data in future health research

The Center for Information Technology (CIT) is a leading national and European institute in the field of information technology. We support and facilitate scientific research and university teaching with Data and IT solutions.

As professor in clinical epidemiology, I am an internationally recognized expert in biobank/cohort studies and related Big Data in Health. Biobank studies have moved from sample-based towards (big) data-based research.



Session 6 speaker: Dr Michael Blum

Associate Vice Chancellor for Informatics and a Professor of Medicine in Cardiology at the University of California

Hype and hope in AI driven healthcare transformation

Dr. Michael Blum is the Associate Vice Chancellor for Informatics and a Professor of Medicine in Cardiology at the University of California, San Francisco. As an active clinician, Dr. Blum provides preventative and acute care for patients with a wide variety of cardiac disease. He is passionate about wellness and prevention of heart disease through a heart healthy lifestyle.

Prior to his medical career, Dr. Blum was trained as an engineer, and he applies his expertise in technology to health care as UCSF's Chief Digital Transformation Officer and the Director of the UCSF Center for Digital Health Innovation (CDHI). Since its founding in 2013, CDHI has become a global leader in the development, validation, and commercialization of novel, impactful, digital health apps, devices, sensors, and platforms. CDHI works with start-ups, academic partners, and established industry leaders to advance digital health and UCSF's goal of Precision Medicine. The center has collaborations with technology partners such as Cisco, GE Healthcare, Intel, Salesforce, and Samsung to develop and validate a variety of digital platforms, algorithms, and apps. Dr. Blum also serves as an advisor to numerous health technology companies.

Previously, as UCSF's Chief Medical Information officer, Dr. Blum led clinicians in the successful enterprise-wide deployment of Epic's electronic health record and enterprise data warehousing. He was instrumental in the creation of the cross-UC patient data warehouse that aggregates extensive, longitudinal clinical and financial data on over 14 million individuals – almost 1/3 of the population of California. He is now focusing on the implementation of next-generation patient-facing technologies that impact clinical quality, patient engagement, and cost as UCSF works to transform healthcare delivery.



Session 6 speaker: Shu Ye, PhD

Professor of Cardiovascular Molecular Medicine and Genetics, University of Leicester, Visiting Professor at Shantou University Medical College

The Shantou University Medical College big data on health project

Shu Ye graduated in medicine in China and gained a PhD from University College London. He then worked as a British Heart Foundation Research Fellow at University of Oxford, Lecturer/Senior Lecturer at University of Southampton, and Reader/Professor at Queen Mary University of London. He is currently the Professor of Cardiovascular Molecular Medicine and Genetics at University of Leicester and a Visiting Professor at Shantou University Medical College. His research is focused on the genetic basis of cardiovascular disease, with a particular interest in the biological and pathological mechanisms underlying the influences of genetic variants.

16:00–17:00

SESSION 7

Next Frontiers

Chair: Gil McVean, Oxford



Session 7 chair: Professor Gil McVean

Professor of Statistical Genetics, Director of the Oxford Big Data Institute, Li Ka Shing Centre for Health Information and Discovery
University of Oxford

Gil McVean FRS FMedSci is Professor of Statistical Genetics at the University of Oxford and Director of the Big Data Institute within the Li Ka Shing Centre for Health Information and Discovery. His research focuses on developing and applying statistical and computational methodologies to help understand the mechanisms shaping genetic variation in natural populations and the implications of genomic diversity for human health and disease. He has made contributions to our understanding of areas including recombination hotspots, historical patterns of natural selection, the male mutation rate, human genomic variation, the role of HLA in complex disease and genealogical processes. He has played a leading role in the HapMap and 1000 Genomes Projects and works on both humans and their pathogens, ranging from HIV to malaria. He is also co-founder of Genomics plc, which is developing and applying sophisticated analyses of massive integrated genomic and phenotypic datasets to learn about human biology. Gil McVean was awarded the 2010 Francis Crick Prize and the 2012 Weldon Memorial Prize for his work in statistical and population genetics and, in 2016, was made a fellow of the Royal Society and the Academy of Medical Sciences.



Session 7 speaker: Angela Wood

University Lecturer in Biostatistics, Dept. of Public Health and Primary Care, University of Cambridge

Mobilising electronic health records for individualised dynamic prediction of chronic disease

Angela Wood is a Senior Lecturer in Biostatistics in the Department of Public Health and Primary Care, University of Cambridge and Fellow / Senior Tutor of Darwin College, Cambridge. Angela's research interests are centered on the development and application of statistical methods for advancing epidemiological research. She has focused on developing statistical methodology for handling measurement errors and missing data, using repeated measures of risk factors, joint models and landmark models for analysis of longitudinal and survival data, multiple imputation, risk prediction, case-cohort study designs, Mendelian randomisation and meta-analysis. Her applied research has focused on cardiovascular disease and pregnancy related outcomes using a variety of routine data sources and prospective studies.



Session 7 speaker: Rt Hon the Lord Drayson of Kensington PC PhD FEng

Personal air quality monitoring

Paul Drayson trained as an engineer before studying for a PhD in robotics and his career as a science entrepreneur. As CEO he led PowderJect Pharmaceuticals from Oxford University spin-out to a FTSE 250 business and one of the world's leading vaccine companies. His current business, Drayson Technologies Ltd, is an Internet of Things company.

Public policy roles have included Chairman of the BioIndustry Association, Minister for Defence Procurement and Minister for Science and Innovation.

He is an experienced racing driver and pioneer of green motorsport, holds three FIA World Land Speed Records for electric vehicles and has competed in the Le Mans 24 hours.

Paul is member of the House of Lords and has three NED roles with the University of Oxford, the Royal Navy and Airbus Group.



Session 7 panel member: Michael Botchan

Dean of Biology, Professor of Biochemistry, Biophysics and Structural Biology, University of California Berkeley

Michael Botchan is Dean of Biology and a professor of Biochemistry, Biophysics and Structural Biology at the University of California, Berkeley. He is also a member of the National Academy of Sciences, and the American Academy of Arts and Sciences. The Botchan Lab at UC Berkeley studies the mechanisms and regulation of DNA replication and gene expression in eukaryotes, especially focused on how these processes couple to the cell cycle and progression from G1 to S phase in a developmental context.



Session 7 panel member: Richard Gilbertson

Li Ka Shing Chair of Oncology, Head of Dept. of oncology, Director, Cancer Research UK Cambridge Centre, University of Cambridge

Richard Gilbertson trained as a pediatric oncologist in the UK before moving in 2000 to St. Jude Children's Research Hospital, USA where he served as Scientific and Comprehensive Cancer Center Director, Executive Vice President and Lillian R. Cannon Endowed Chair. In August 2015, he moved back home to England where he Chairs the Department of Oncology and Directs the CRUK Cambridge Centre at Cambridge University. His laboratory research is focused on understanding the link between normal development and the origins of cancer, particularly brain tumors.

Research showcase

Tuesday 12 September 1-2pm: Atrium, Big Data Institute

- **Simon Schwab** – Directed dynamic functional networks in the brain
- **Michael Suttie** – Atypical Face Shape in Diverse Populations: Detection, Prediction and Intervention
- **Michael Ferlaino** – Minerva & Me: Crowdsourcing for Computational Phenotyping
- **Tanya Golubchik** – Quantifying within-host viral diversification using deep sequencing: recent vs chronic HIV infection
- **George Busby** – Towards a genomic data observatory to support malaria control
- **Alex Stiby** – Genetic approaches to elucidating our understanding of therapeutic targets
- **Nina Hallowell** – Ethics for effective big data research in the Oxford Big Data Institute
- **Thomas Littlejohns** – UK Biobank: an open access population-based prospective study of 500,000 men and women
- **Xiaoming Yang and Garry Lancaster** – Development of innovative bespoke IT systems to support and manage large China Kadoorie Biobank
- **Imen Hammami** – Risk of Major Bleed in Relation to Vascular Disease Risk in 0.5M UK Biobank Participants: Implication for Preventive Aspirin Use
- **Jim Davies** – Using routinely-collected patient data for translational research: the NIHR Health Informatics Collaborative

Research showcase

Wednesday 13 September 1-2pm: Atrium, Big Data Institute

- **Devesh Batra** – Automatic selection of stimulus-distractor image pairings for digital phenotyping in pre-clinical Dementia
- **Matthew Willetts** – Recognising Human Behaviour from Wrist Mounted Accelerometer Data using Random Forests & HMMs on BioBank Data
- **Lauren Bandy** – Using big data on the sales and composition of soft drinks to monitor company reaction to UK nutrition policy
- **Tim Lucas** – Malaria risk maps from administrative case data using disaggregation regression
- **Annie Browne** – Modelling Inequalities in Under-Five Mortality in Sub-Saharan Africa
- **Dan Woodcock** – Cancer evolution and heterogeneity
- **Danielle Edwards** – Factors influencing recruitment in large randomised trials
- **Fay Smith** – Adverse effects on health and well-being of working as a doctor: views of the UK medical graduates of 1974 and 1977 surveyed in 2014
- **Blake Thomson** – Smoking and mortality: 14-year prospective study of 150,000 Mexican adults
- **Deborah Malden** – Adiposity and Myocardial Infarction in the UK Biobank: A prospective cohort study of 450,000 adults