Institute of Psychiatry,
Psychology & Neuroscience

KING'S College LONDON

Parade of stars

Celebrating staff and student research

13.30 – 16.00 Tuesday 22 May 2018

Programme

Welcome to Parade of Stars 2018, our annual showcase of exciting and innovative research celebrating academic success across the Institute of Psychiatry, Psychology & Neuroscience (IoPPN).

This year's showcase includes five minute talks from researchers at all levels from student to professor, as well as the professional services who support our work and the 3 Minute Thesis (3MT) finalists. We will also be celebrating the achievements of eight postdoctoral researchers who have received Independent Researcher Awards.

This is an occasion for networking and to inspire collaboration. You will have the opportunity not only to hear about the IoPPN's work but also to speak with presenters during the coffee break and the reception after the event, as well as with colleagues across the IoPPN.

The Parade of Stars is a celebration of the excellence, inclusivity and collaboration that makes the IoPPN such a wonderful institution for working and studying. We hope you will all enjoy the afternoon.

Professor Ian Everall
Executive Dean of the Institute of Psychiatry, Psychology & Neuroscience

Professor Carmine Pariante and **Professor Thalia Eley**
Chairs of the Research & Innovation Committee

Event programme

All talks and presentations will take place in the IoPPN Wolfson Lecture Theatre (IoPPN Main Building, Denmark Hill Campus).

13.30	*Professors Ian Everall, Thalia Eley and Carmine Pariante*	Welcome
13.40	*Professor Ian Everall*	Presentation of Independent Researcher Awards
13.50	*Peter Bishai*	What is The NIHR Wellcome King's Clinical Research Facility and what do we do?
13.55	*Professor Richard Emsley*	21st century trials
14.00	*Dr Sarah Mizielinska*	Protein phase transitioning: the new hot topic in neurodegeneration
14.05	*Dr Tom Freeman*	Cannabinoids, mental health and addiction
14.10	*Dr Helen Fisher*	Risk and protective factors for childhood psychotic symptoms
14.15	*Nuria Mackes*	The effects of early childhood institutional deprivation on adult brain structure
14.20	*Professor Elizabeth Bradbury*	Rewiring the injured spinal cord: moving beyond the scar to restore hand function
14.25	*Dr Katherine Morley*	A nuanced approach to the relationship between polysubstance use and mental health
14.30	*Professor Craig Morgan*	The social origins of psychosis
14.35	*Dr Anthony Vernon*	Maps to mechanisms: translating clinical neuroimaging data into preclinical models
14.40	*Dr Lucia Valmaggia*	Virtual reality for mental health: bringing reality into the lab
14.45	*Coffee break, Education Hub*	
14.55	*Sam Heasman AKC*	Institute of Psychiatry, Psychology & Neuroscience: how IT contributes to it's success
15.00	*Dr Jonathan Coleman*	Genetic influences on depression stratified by lifetime traumatic events
15.05	*Dr Bradley Smith*	Tales of a gene hunter: evaluating the genetic causes of Motor Neurone Disease
15.10	*Dr Faith Matcham*	Remote assessment of disease and relapse in major depressive disorder
15.15	*Dr Ben Gardner*	Understanding sitting: the psychology of workplace sedentary behaviour
15.20	*Dr Nickolai Vysokov*	Recapitulating pain circuitry... in a dish!
15.25	*Stephanie Hynes*	Investigating stress related neural circuitry with stem cell derived visceral motor neurons
15.30	*Dr Sylvane Desrivieres*	Understanding the genetic basis of normal and disease-related variation in the human brain
15.35	*Dr Kinga Bercsenyi*	To be or not to be – neuronal death during development
15.40	*Dr Alexis Cullen*	The Stress, Inflammation and Psychosis (SIP) Study
15.45	*Dr Louise Hull*	Development of the Implementation Science Research Development (ImpRes) tool
15.50	*Professor Oliver Howes*	Treating psychosis: lessons from Groundhog Day
15.55	*Dr Ben Carter*	Understanding the evidence behind tech is critical
16.00	*Professor Ian Everall*	Closing remarks and thanks
	Followed by wine reception in the IoPPN canteen, 2nd Floor, IoPPN Main Building	

Presentation of the

Independent Researcher Awards 2017–18

October 2017

Independent Researcher Award – Institute of Psychiatry, Psychology & Neuroscience

Dr Alicia Hughes – *Department of Psychological Medicine*

Dr Kim Chisholm – *Wolfson Centre for Age Related Diseases*

Independent Researcher Award – NIHR Maudsley Biomedical Research Centre

Dr Billy Gazard – *Department of Psychological Medicine*

Dr Sadie Boniface – *Department of Addictions*

April 2018

Independent Researcher Award – Institute of Psychiatry, Psychology & Neuroscience

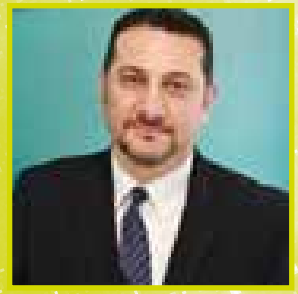
Dr Douglas Lopes – *Wolfson Centre for Age-Related Diseases*

Dr Susanna Roberts – *Department of Psychology*

Independent Researcher Award – NIHR Maudsley Biomedical Research Centre

Dr Karen Hodgson – *Social, Genetic & Developmental Psychiatry Centre*

Dr Elena Makovac – *Department of Neuroimaging*



Peter Bishai
Faculty Manager
Clinical Research Facility

What is the NIHR Wellcome King's Clinical Research Facility and what do we do?

Synopsis

The CRF is a medical facility designed with mental heath in mind. It is currently supported by NIHR but was built with a Wellcome grant and charitable donations from King's Health Partners and many others. The CRF can provide space and staff support for translational, experimental and early phase, feasibility or pilot research. The new build spans three floors: on the ground and first are a 3T MRI functional scanner, two EEG suites, a virtual reality suite, several interview rooms with video recording capabilities and medical areas where blood and other samples can be taken by the support staff made up of nurses and technicians. There are also over-night facilities. The second floor is dedicated to a Cell Therapy Unit where cells are made and used as treatment for patients either in main stream medical care or under research protocols. The CRF also manages a Clinical Trials Facility (CTF) where commercial research can be supported.

Biography

Peter has an academic background in science with an acquired knowledge of research facilities management. With a degree in Animal Physiology (Queen Mary College, 1988), Peter joined the Academic Department of Surgery of King's College School of Medicine & Dentistry as a research technician. There he completed an MPhil in Pharmacology (1994) before moving to a joint research and management post within the department. As Denmark Hill Campus Technical Manager (Faculty of Life Sciences & Medicine), Peter holds the role of Facilities Manager for the Clinical Research Facility, having joined the capital project in 2008. Supporting all areas within the facility with special reference to the Cell Therapy Unit, to better understand the specific requirements of the bioprocess environment, Peter completed the certificate course in the Modular Training for the Bioprocess Industries Programme at University College London (2012). Peter is uniquely placed to support the running of this multidisciplinary facility working at the cutting edge of a number of clinical research programmes.

Professor Richard Emsley
Professor of Medical Statistics & Trials Methodology
Department of Biostatistics & Health Informatics

21st century trials

Synopsis

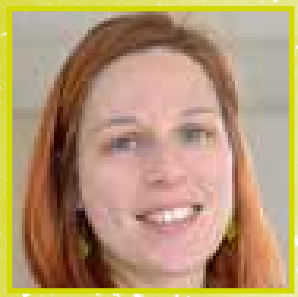
Patients and the NHS need better and more cost-effective randomised trials. These are the 'gold standard' way of seeing if a new treatment works or not, and take years of effort involving lots of patients and funding. However, around half of trials fail to show that the new treatment is better than what it is being compared with.

Cancer treatment trials have recognised this problem. They use trial designs which test multiple treatments, and find out quicker answers to more questions. These 'efficient trials' are able to involve patients at a faster rate and to improve the chances of patients receiving a treatment that works. In mental health, the whole toolbox of trial designs is not being used. Sometimes there are valid reasons for this, but sometimes it is simply that researchers do not know about them – this talk will expand on the concept of 'efficient trials' in mental health.

Biography

Richard joined the IoPPN in January 2018 as Professor of Medical Statistics & Trials Methodology. Prior to this, he was Professor of Medical Statistics at The University of Manchester and Deputy Director of the Manchester Clinical Trials Unit.

His research involves the development of statistical methods for causal inference, and efficacy and mechanisms evaluation. Current applications of these methods include randomised trials of complex interventions in mental health, and trial designs and associated analysis methods in precision medicine. He is an investigator on the MRC North West Hub for Trials Methodology Research, and currently trial statistician on 15 NIHR and MRC funded randomised trials. He is the founder of the European Causal Inference Meeting.



Dr Sarah Mizielinska
Lecturer in Dementia & Neurodegenerative Diseases
Department of Basic & Clinical Neuroscience

Protein phase transitioning: the new hot topic in neurodegeneration

Synopsis

Scientists have spent decades focussing on protein structure and function. More recently unstructured regions are gaining attention due to their ability to allow proteins to undergo phase separation or phase transitioning. In cells the unstructured region of these proteins allows them to separate from the surrounding aqueous environment to form membraneless organelles (liquid-liquid phase separation). Under some circumstances these proteins can actually phase transition into a solid state in the form of a hydrogel. Intriguingly many proteins associated with neurodegenerative disease contain unstructured regions and affect membraneless organelles and hydrogels. The selection barrier of the nuclear pore is also composed of a hydrogel from unstructured side chains, and nucleocytoplasmic transport is responsible for significant pathology in neurodegenerative disease. Sarah's research therefore focuses on how disease-associated proteins containing unstructured regions affect the nuclear pore and subsequent nucleocytoplasmic transport.

Biography

Sarah was appointed as Lecturer in Dementia & Neurodegenerative Diseases in October 2016, and is based in the Department for Molecular & Cellular Neuroscience in the Maurice Wohl Clinical Neuroscience Institute. In August 2017 she was also appointed as a fellow of the new UK Dementia Research Institute – a national consortium focused on cutting-edge dementia research, funded by the Medical Research Council, Alzheimer's Society and Alzheimer's Research UK. Sarah's research group focusses on how nucleocytoplasmic transport is affected in frontotemporal dementia and amyotrophic lateral sclerosis at the single molecule level, and how this links to common disease pathologies. These studies utilise super-resolution microscopy to investigate the dynamics of single molecule cargo through the nuclear pore combined with biophysical studies to study phase transitioning of nuclear pore selection barriers to unveil unique disease pathomechanisms often overlooked from bulk endpoint analyses.

Dr Tom Freeman
Senior Academic Fellow
Department of Addictions

Cannabinoids, mental health and addiction

Synopsis

Across Europe, more people enter specialist drug treatment because of cannabis than any other illicit drug. In an increasing number of states and countries, cannabis will become available as a legal drug alongside tobacco and alcohol. As cannabis is the first street drug to transition to a legal product, it is imperative to understand its harmful and beneficial effects and seek ways to make it safer. The main psychoactive constituent of cannabis is delta-9-tetrahydrocannabinol (THC). Adverse effects of THC include memory impairment, anxiety, psychotic-like symptoms and the development of dependence. Cannabidiol (CBD) is a non-intoxicating cannabis constituent which shows promise for the treatment of several conditions including anxiety and psychotic disorders.

Tom will present data documenting an increase in THC potency in cannabis products across Europe. He will present evidence that rising THC may have contributed to the increased demand for treatment of cannabis problems. Finally, Tom will present data testing whether CBD can offset the harmful effects of cannabis.

Biography

Tom joined the IoPPN in April 2017 as a Senior Academic Fellow working with Professor Michael Lynskey to examine how trends in cannabis potency predict population markers for addiction.

Tom is a member of Council on the British Association for Psychopharmacology, who previously awarded him for his scientific research and public engagement. He has also received awards from the International College of Neuropsychopharmacology, the European College of Neuropsychopharmacology and the European Monitoring Centre for Drugs and Drug Addiction. He has also received funding to investigate the effects of THC on the human brain (British Medical Association), adolescent cannabis use (Medical Research Council) and the role of CBD in cannabis-related harms (Medical Research Council).

Dr Helen Fisher
Senior Lecturer and MQ Fellow
Social, Genetic & Developmental Psychiatry Centre

Risk and protective factors for childhood psychotic symptoms

Synopsis

Psychotic symptoms are reported by approximately one in 20 children at 12 years of age and include paranoid thoughts, hearing or seeing things that others do not, and believing that others can read one's mind. These experiences are often distressing, associated with self-harm in adolescence, and highly predictive of schizophrenia, other psychiatric disorders, and suicide in adulthood. Therefore, understanding which children are most likely to develop psychotic symptoms and what can protect them urgently requires investigation to facilitate early identification of vulnerable children to optimally target preventive interventions.

This talk will showcase findings from the E-Risk Longitudinal Twin Study, demonstrating that psychosocial and biological factors are associated with the onset of psychotic symptoms in children. Moreover, it will be shown that children's characteristics, family context, and the wider community they are brought up in can protect children from developing psychotic symptoms, even when they have been victimised multiple times.

Biography

Dr Helen Fisher is a senior lecturer and MQ Fellow based in the Social, Genetic & Developmental Psychiatry Centre. Her multidisciplinary programme of research focuses on the role of social, biological, psychological, and wider environmental factors in the development and course of psychosis and depression. She jointly leads projects exploring epigenetic signatures of exposure to psychosocial stressors in adolescence; biopsychosocial markers of resilience following exposure to childhood maltreatment; the role of air pollution in the development of adolescent mental health problems; and improving detection of adolescents at high risk for depression across four continents.

Additionally, she is passionate about collaborating with artists to find creative ways to engage the public in discussions about psychosis and reduce the stigma associated with these experiences and has recently been involved in four theatre productions and a sold-out immersive psychosis exhibition in London.

Nuria Mackes
PhD student and 3 Minute Thesis finalist
Department of Child & Adolescent Psychiatry

The effects of early childhood institutional deprivation on adult brain structure

Synopsis

Early-life deprivation can have a profound and long-lasting negative impact on human development with effects often persisting into adulthood. The longitudinal English and Romanian Adoptees' (ERA) study has examined the development of a cohort of individuals who experienced severe deprivation in the Romanian institutions of the Ceaușescu regime before being adopted into caring and supportive UK families.

This natural experiment allows the effects of early adversity to be distinguished from both pre-existing genetic risk and subsequent adverse exposures that have confounded causal inferences in previous studies. ERA now includes the ERA Brain Imaging Study – the first examination of the effects of such severe institutional deprivation on brain structure and function in adulthood.

In this talk, Nuria will present the first evidence that even twenty years after it has ended, early institutional deprivation is associated with changes in brain structure.

Biography

Nuria is in the final year of her PhD under the supervision of Professor Edmund Sonuga-Barke, Professor Mitul Mehta and Dr Graeme Fairchild. Her PhD is the first to examine the effects of early institutional deprivation on adult brain structure.

This year, Nuria was a finalist in the King's 3 Minute Thesis competition.

Prior to her PhD Nuria completed an MSc in Psychology and Cognitive Neuroscience at Ruhr University Bochum and worked as a research assistant at the Department of Neuroimaging.

Professor Elizabeth Bradbury
Professor of Regenerative Medicine & Neuroplasticity
Wolfson Centre for Age-Related Diseases

Rewiring the injured spinal cord: moving beyond the scar to restore hand function

Synopsis

Spinal cord injury (SCI) can result in severe and lifelong disability, with profound social, health and economic consequences affecting more than 2.5 million people worldwide. Chronic tissue scarring and extracellular matrix inhibitors prevent tissue repair and restrict neuroplasticity after SCI. These pathological processes can be targeted with matrix-degrading enzymes.

Elizabeth will describe a novel gene therapy approach, using a regulatable viral vector system to deliver the enzyme chondroitinase and control its delivery *in vivo*. Using a clinically relevant animal model she will assess its potential for promoting recovery of important functions such as reaching and grasping objects, which in tetraplegic patients are considered the highest priority for improving independence and quality of life.

Biography

Elizabeth Bradbury is Professor of Regenerative Medicine & Neuroplasticity. She is based at the Wolfson Centre for Age-Related Diseases, where her research focuses on developing regenerative therapeutics and assessing functional neuroplasticity and repair after central nervous system injury, as well as using novel methodology for understanding molecular mechanisms underlying the chronic and non-resolving pathology of traumatic injuries.

Elizabeth received a Career Development Award and a Senior Non-Clinical Fellowship from the Medical Research Council (MRC) and was awarded the Schellenberg Prize for Research in 2008 by the International Foundation for Research in Paraplegia. She is a member of the CHASE-IT (chondroitinase for injury therapy) consortium, who are developing vector-based gene therapies for treating human SCI and the SCI-NET Consortium who are assessing novel bioactive mediators of tissue scarring, inflammation and extracellular matrix remodelling after spinal cord injury.

Dr Katherine Morley
Lecturer
Department of Addictions

A nuanced approach to the relationship between polysubstance use and mental health

Synopsis

Polysubstance use (the use of multiple substances within a given time frame) is associated with higher levels of drug dependence, mental illness, suicidal thoughts and attempts, and engaging in high-risk behaviours such as violence and unprotected sex. However, although polysubstance use patterns are diverse, those using substances other than alcohol, tobacco, or cannabis are often treated as a single group in research on substance use.

In her presentation, Katherine will discuss research focused on characterising different types of polysubstance use and investigating whether risk behaviours and mental health outcomes are the same across polysubstance use patterns.

Biography

Katherine received her PhD from the University of Queensland, Australia, in 2007. She then took postdoctoral positions at the Centre for Molecular, Environmental, Genetic and Analytic Epidemiology at the University of Melbourne, the Department of Human Genetics at the Wellcome Trust Sanger Institute, and the Department of Epidemiology at University College London. She currently works at the National Addiction Centre and is also Consultant Epidemiologist for the Society and Ethics Research Group at the Wellcome Genome Campus.

Katherine has worked on a range of topics in genomics and epidemiology, but her more recent work has focused on prognosis research, particularly using linked electronic record data provided by the NIHR Maudsley Biomedical Research Centre.

Professor Craig Morgan
Professor of Social Epidemiology
Department of Health Service & Population Research

The social origins of psychosis

Synopsis

In this talk, Craig will present select findings from programmes of research conducted over the past 20 years that implicate adverse social contexts and experiences, particularly those involving threat and violence, in the onset and persistence of psychoses. He will finish by briefly introducing a new cohort study designed to further investigate the impact of social adversities on psychoses and other mental health problems during adolescence.

Biography

Craig is Professor of Social Epidemiology and Head of the Health Service & Population Research Department. He has previously held a MRC Special Training Fellowship in Health Services Research, and completed his PhD in Social Psychiatry, at the IoPPN. His research is focused on social and cultural influences on the onset, course and outcome of mental disorders, particularly during adolescence, and he has led multi-country programmes on these topics, funded by, among others, the MRC, Wellcome Trust, and European Union. He has published over 150 academic papers on these topics, and edited two books: Society and Psychosis, published by Cambridge University Press; and Principles of Social Psychiatry, published by Wiley-Blackwell. He is Editor-in-Chief of the journal Social Psychiatry and Psychiatric Epidemiology.

Dr Anthony Vernon
Senior Lecturer
Department of Basic & Clinical Neuroscience

Maps to mechanisms: translating clinical neuroimaging data into preclinical models

Synopsis

Understanding how alterations in brain structure and network function in patients with psychiatric disorders aligns with the corresponding animal models is crucial to validate subsequent observations at the cellular, molecular and network levels.

To address the current lack of continuity between the levels of analysis used in animal models and clinical research into brain disorders, we have developed a cutting-edge, systems-level integrated biomedical imaging approach which can recapitulate precise correlates of specific neural systems in rodents to humans. We apply this powerful systems level, translational approach to non-invasive mapping of brain structural and functional abnormalities in rodent models of tractable genetic and environmental risk factors for psychiatric disorders.

Biography

After reading Biochemistry and subsequent doctoral training in Neuropharmacology at Imperial College London, Anthony moved to King's College London on an Edmond J Safra fellowship followed by an MRC postdoctoral fellowship with Professor Shitij Kapur. In 2013, he was appointed lecturer at the IoPPN. His work, particularly on antipsychotic drugs, has led to numerous high impact publications and regular invitations to speak in conference symposia and at UK and international research institutions. His research has also been recognised by awards for scientific excellence from the European College of Neuropsychopharmacology, Collegium Internationale Neuro-Psychopharmacologicum, European Behavioural Pharmacology Society, Parkinson's UK and most recently the Senior Non-Clinical award for Excellence in Psychopharmacology from the British Association for Psychopharmacology. His research is currently funded by grants from the Medical Research Council (including a prestigious New Investigator Award), the Wellcome Trust as well as numerous smaller awards.

Dr Lucia Valmaggia
Senior Lecturer
Department of Psychology

Virtual reality for mental health: bringing reality into the lab

Synopsis

Virtual reality (VR) enables researchers and clinicians to bring social situations into the lab or consultation room. The same virtual social environment can be presented to different participants to assess, in real-time, their neuro-cognitive functioning, appraisal, emotions, body response and behaviour. VR environments can also form the ideal platform for behavioural experiments and for gradual exposure, as VR allows the manipulation of the environment and of virtual characters. In Lucia's talk, she will show examples of current and future research.

Biography

Lucia works as Senior Lecturer in the Psychology Department, where she leads the Virtual Reality Lab, and is a Consultant Clinical Psychologist at the South London and Maudsley NHS Foundation Trust. She is the President-Elect of the IEPA-Early Intervention in Mental Health Association. In her career to date she has sought to conduct research which is clinically relevant and directly applicable to the delivery of clinical services. Her work has focused on the prevention and early detection of mental health problems, in particular psychosis. She has extensive experience in service implementation in the community and she set up the first service for prevention and early detection of psychosis in a prison setting. Lucia conducts experimental studies using virtual reality to explore the effects of adverse life experiences on the appraisal of social situations. She leads clinical studies to evaluate virtual reality assisted assessment and treatment.

Sam Heasman AKC
IT Service Delivery Manager

The Institute of Psychiatry, Psychology & Neuroscience: how IT contributes to it's success

Synopsis

What do successful research and education have in common? It's not just that they're both delivered by the IoPPN but both are reliant on IT!

This short talk will provide an overview of the obvious and not-so-obvious services provided by IT, the role of the Service Delivery Manager and how it is one of the key interfaces between the faculty and IT to ensure success. With responsibility for managing over 450 systems and nearly 90 projects in our portfolio, there is lots of work going on in IT to improve the digital environment at King's. This talk will provide a brief insight into the work of King's IT, focussing on contribution to IT service delivery for IoPPN.

Biography

As IT's Service Delivery Manager, Sam is the conduit between academic faculties and IT.

She works with faculty stakeholder groups to understand their priorities and relay this back to IT to enable the best service delivery possible. She helps academic colleagues understand what IT does and the drivers behind technological decisions.

Sam brings a deeper understanding of our faculty customers back to IT's management team, as well as supporting IT in helping their customers meet their objectives.

Sam started at King's as the IoPPN's Desktop Support Manager in 2009 and has undertaken a variety of roles, both technical and service management, after IT was centralised but has always maintained a strong link with the IoPPN.

Dr Jonathan Coleman
Postdoctoral Researcher in Statistical Genetics
Translational and Neuropsychiatric Genetics Group

Genetic influences on depression stratified by lifetime traumatic events

Synopsis

Depression and reported trauma exposure have a complex relationship, such that individuals with depression are more likely to report previous exposure to trauma and to experience later traumatic events. In addition to this, both depression and reported trauma exposure are heritable traits, implying genetic influences. Genetic research into the relationship of depression and reported trauma exposure has been inhibited by small sample sizes and differing methods of measurement.

In this talk, Jonathan will present an overview of work in 92,957 individuals from the UK Biobank, in which genetic influences on depression in individuals with or without reported trauma exposure were examined. He will show evidence that depression in individuals reporting trauma exposure is genetically correlated with a variety of correlates of depression as well as with other psychiatric disorders, whereas depression in individuals not reporting trauma exposure has a narrower set of genetic correlations with psychiatric disorders only.

Biography

Jonathan Coleman is a Postdoctoral Researcher in Statistical Genetics in the Translational and Neuropsychiatric Genetics Group headed by Dr Gerome Breen. Following an undergraduate degree in Natural Sciences, he joined the Social, Genetic & Developmental Psychiatry Centre as an MSc/PhD student, working on the genetics of cognitive behavioural therapy and later on genetic epidemiology and gene-environment interplay more broadly. This latter remains the primary focus of his current work, particularly in depression and making extensive use of the UK Biobank dataset. He also has an interest in the broader aim of translating statistical associations from genome-wide association studies into functional mechanisms.

Dr Bradley Smith
Research Fellow
Department of Basic & Clinical Neuroscience

Tales of a gene hunter: evaluating the genetic causes of Motor Neurone Disease

Synopsis

Bradley's research is focused on the identification and functional investigation of novel genes that cause Motor Neurone Disease (MND). By determining the genetic basis of the disorder one can begin to put the pieces of the puzzle together – which is to identify the crucial molecular mechanisms underpinning the disease process in neurons of MND patients.

Bradley and his team have identified several new MND genes recently, and are functionally assessing the role of these genes by modelling them in zebrafish. The benefits of zebrafish are that they possess a spinal cord with neuronal projections at 48 hours of development, approximately 70% of human genes are conserved in the fish genome, fish are translucent for the first five days of their life and fish are highly cost effective.

The belief is that this model will provide an effective platform in which to functionally assess novel MND genes and provide a useful tool for understanding their role in the disease process.

Biography

Bradley completed his Bachelor of Science at the University of Queensland, Australia from 1991–1995 followed by a Postgraduate Diploma in Diagnostic Technology at Queensland University of Technology from 1998–1999. In 2000 he came to the UK to work with Professor Chris Shaw at King's before embarking on a PhD in the Neurogenetics of MND in which he graduated in 2006. He then completed his first postdoctoral position at the UCL Cancer Institute from 2006–2009 before returning to King's, under Chris Shaw, to lead a large-scale familial MND gene-hunting project using exome sequencing in 2009. He was awarded a three-year Medical Research Foundation (MRF) Fellowship in 2015 making zebrafish models of novel MND genes.

Bradley has recently been awarded a prestigious three-year van Geest Fellowship that will commence on 1 October 2018 at the Maurice Wohl Clinical Neuroscience Institute.

Dr Faith Matcham
Postdoctoral Research Associate
Department of Psychological Medicine

Remote assessment of disease and relapse in major depressive disorder

Synopsis

RADAR-CNS is a European research project funded by the Innovative Medicines Initiative. The programme is developing new ways of measuring and predicting adverse outcomes in major depressive disorder, epilepsy and multiple sclerosis. Remote measurement technologies (RMT) including sensors in wearable devices and smartphones combined with app-based self-reported symptoms and experience sampling methodologies can provide data on physical activity, sleep, stress, mood, cognitive function, speech and social interactions.

The depression clinical study is a multi-centre prospective cohort study (sites in London, Amsterdam and Barcelona), which will recruit people with a history of depressive disorder and aims to: 1) determine the usability, feasibility and acceptability of acceptability of RMT; 2) examine the utility of RMT to measure current clinical state; and 3) determine whether RMT can predict depressive relapse and other critical outcomes such as depressive relapse, anxiety, self-esteem, quality of life, work disability and healthcare service use.

Biography

Dr Faith Matcham is a Postdoctoral Research Associate based in the Department of Psychological Medicine. She is also the NIHR Maudsley BRC Research Champion for diversity and inclusion. Her research interests lie in the relationship between mental and physical health and she completed her PhD in 2017, which focused on the longitudinal association between mental health and disease activity in rheumatoid arthritis. She is currently working for the Remote Assessment of Disease and Relapse – Central Nervous System (RADAR-CNS) project, which explores the potential for wearable and smartphone sensors to predict outcomes in people with epilepsy, multiple sclerosis or major depressive disorder. She is primarily responsible for coordinating the depression work stream, which is using wearable technology to predict relapse in people with a history of major depression.

Dr Benjamin Gardner
Senior Lecturer
Department of Psychology

Understanding sitting: the psychology of workplace sedentary behaviour

Synopsis

Growing evidence suggests that sitting time is a unique risk factor for mortality and morbidity. This puts desk-based office workers, who typically sit for 10.5 hours per workday, at particular risk.

Workplace sitting-reduction interventions developed to date are unlikely to be feasible for large scale implementation, as they do not recognise why office workers sit for long periods, or how office workers and their employers are likely to respond to sitting-reduction promotion.

This talk describes recent and ongoing work to understand how office workers think about sitting time, and how they may respond to worksite sitting-reduction initiatives.

Biography

Dr Gardner is a social psychologist with an interest in applying social psychology to public health. His research interests lie in developing and applying theory to understand and change health-related behaviours. He recently completed an MRC-funded project seeking to develop an intervention to reduce workplace sitting time, and is currently undertaking work to understand how people mentally encode their sitting time.

Dr Nickolai Vysokov
Postdoctoral Research Associate
Wolfson Centre for Age Related Diseases

Recapitulating pain circuitry... in a dish!

Synopsis

Painful stimuli are detected by sensory neurons and relayed to other neurons in the spinal cord before being sent to the brain, where they cause a sensation of pain. Some injuries may lead to chronic painful sensations ranging from mild to debilitating. Nickolai is working on developing a novel pre-clinical model of injury-induced neuropathic pain by recapitulating aspects of the pain circuitry in a dish. The microfluidic isolation of 'periphery', 'sensory' and 'spinal cord' compartments is unique in that we can damage the nerve endings in 'periphery' and then pharmacologically interrogate injured sensory neurons or downstream spinal cord neurons.

In this talk, Nickolai will introduce the model and present how it can be used to investigate the physiology and molecular biology of cells after injury.

Biography

Nickolai's background is in biochemistry and he gained a PhD in Cellular and Molecular Neurobiology from Imperial College London in 2015. He worked for a company manufacturing neural stem cells for stroke patients before returning to academia, and is currently working as a Postdoctoral Research Associate in Dr Ramin Raouf's laboratory. His long-term aim is to engineer and train artificial 'brains-in-a-dish'. To that extent, in his PhD he was using microfluidics to study axonal guidance and synapse formation, while his latest project involved the use of microfluidic devices to recreate aspects of pain circuitry in a dish to study injury-induced neuropathic pain.

Stephanie Hynes
PhD student and 3 Minute Thesis finalist
Department of Developmental Neurobiology

Investigating stress related neural circuitry with stem cell derived visceral motor neurons

Synopsis

The fight or flight response is the body's physiological response to a physical or perceived stressor. This is well known in the context of survival situations, but can also be triggered in other circumstances too. This response is elicited by the sympathetic nervous system, which activates the release of adrenaline into the blood stream.

This talk will give a brief overview of the fight or flight response and the nerves that control it. Stephanie will then go on to explain why she finds the development of this circuitry interesting, and how she is investigating it.

Biography

Stephanie is a first year PhD student in Dr Ivo Lieberam's lab in the Department of Developmental Neurobiology. She has previously completed a Masters of Research in Developmental Neurobiology at the IoPPN, and prior to this received an undergraduate degree in Biomedical Science from the University of Sheffield. Her focus is on the development of the sympathetic nervous system, using stem cells as her model. Currently, she is focusing on differentiating preganglionic sympathetic neurons and chromaffin cells from mouse embryonic stem cells. She will then combine the two cells together to study the formation of the circuitry.

Dr Sylvane Desrivieres
Reader of Genetics
Department of Social Genetic & Developmental Psychiatry

Understanding the genetic basis of normal and disease-related variation in the human brain

Synopsis

Why are some people at risk of developing neuropsychiatric disorders and not others? This question is being addressed by combining brain imaging and genomic data collected from people over the world. Teaming up with scientists in the largest neuroimaging consortia, genomic variants affecting the brain have been identified and their impact on disease-related brain mechanisms uncovered.

Taking a step further, Sylvane's work is now moving to Big Data approaches, combining multimodal brain imaging, genomic and psychosocial data to identify biomarkers predictive of life and health outcomes.

Biography

Sylvane studied molecular biology at the University of Paris XI and completed a PhD at the University of Paris VII. She trained in Switzerland and Germany studying how gene activity controls biological functions in organisms and systems of increasing complexity. Following this, she moved to London to investigate the impact of genes on the living human brain. She combines the tremendous advantages of MRI with genetics and molecular biological approaches to investigate brain-behaviour relationships and identify genes influencing brain development and function. She is Head of the Genetics Working Groups on the European IMAGEN and the international c-VEDA consortia. She is also Head of the Epigenetics Working Group and member of the support team on the international Enhancing Neuro Imaging Genetics through Meta-Analysis consortium (ENIGMA). She recently set up and leads the ENIGMA-Epigenetics Working Group to investigate how epigenetic factors – alone or in combination with genetic factors – shape the brain throughout the lifetime.

Dr Kinga Bercsenyi
Postdoctoral Research Associate
Centre for Developmental Neurobiology

To be or not to be: neuronal death during development

Synopsis

Our brain processes information and instructs action based on the balanced excitation or inhibition of neurons – when this is disrupted, serious neurological conditions arise. One of the prime mechanisms controlling this balance is cell death; depending on the number of excitatory/inhibitory neurons that survive in the developing brain, it will be more or less excitable.

In Kinga's talk, she will describe how the number of these cells is established during development and discuss the involvement of this process in neurodevelopmental disorders.

Biography

Dr Kinga Bercsenyi obtained her Masters degree in Human Biology and Neuroanatomy at Lorand Eotvos University in Hungary. She also studied systems biology at University of Luxembourg. Kinga completed her PhD in Professor Giampietro Schiavo's lab at the London Research Institute and the Institute of Neurology, UCL. Kinga is a Sir Henry Wellcome Postdoctoral Fellow. She is studying the process of interneuron apoptosis during early postnatal development, a process which might have profound implications in the healthy development of both rodent and human neocortex.

Dr Alexis Cullen
Sir Henry Wellcome Postdoctoral Fellow
Department of Psychosis Studies

The Stress, Inflammation & Psychosis (SIP) Study

Synopsis

Schizophrenia is a severe mental disorder characterised by psychotic and cognitive impairment, which typically emerges in late adolescence or early adulthood, following a prodromal period. Whilst stress is a well-established risk factor for schizophrenia, the mechanisms by which stress 'gets under the skin' and leads to these features are unclear.

The hypothalamic-pituitary-adrenal (HPA) axis and inflammatory system are two likely candidates. Abnormalities within the HPA axis and inflammatory systems have been observed in patients with schizophrenia, but relatively little is known about these systems during, or even before, the prodromal phase. By examining individuals at different stages of illness (ranging from 'pre-prodromal' adolescents to adults with chronic illness), the Stress, Inflammation & Psychosis (SIP) study aims to determine whether stress and inflammatory biomarkers are differentially expressed across these clinical stages and their relationship with stress, symptoms, and cognition. In this talk, Alexis will discuss the aims of the SIP project and preliminary findings.

Biography

Dr Alexis Cullen is a Sir Henry Wellcome Postdoctoral Fellow and honorary lecturer in the Psychosis Studies Department. Dr Cullen completed her MSc and PhD at the IoPPN, where she has spent the past decade contributing to a longitudinal investigation of children at elevated risk for schizophrenia. During this time, she established that these children present several features that characterise adults with the disorder, including increased sensitivity to psychosocial stress and abnormalities of HPA axis function.

Alexis' current fellowship extends this work by examining biological markers of stress and inflammation in 1) 'pre-prodromal' adolescents at elevated risk due to a family history or mild symptoms; 2) individuals in the putatively prodromal phase of illness; 3) those who have recently experienced their first psychotic episode, and 4) those experiencing chronic illness, in order to delineate biomarker profiles across the clinical stages of psychosis.

Dr Louise Hull
Senior Research Worker, Centre for Implementation Science
Department of Health Service & Population Research

Development of the Implementation Science Research Development (ImpRes) tool

Synopsis

The importance of implementation science in improving the adoption, implementation, and sustainment of evidence-based practice in healthcare is reflected by the increasing interest the field is attracting from national funding bodies, policy makers, healthcare professionals and academic researchers globally. The ability to design and execute high-quality implementation research is fundamental to advancing the field and enhancing its impact on health services and policies. The challenge the field faces, however, is that implementation research remains relatively novel within applied health research. As such, it has been described as a growing but not well understood field of health research. Guidelines to guide methodological and conceptual decision-making relevant to implementation research are lacking.

To address this gap, and to support researchers design high-quality implementation research, a novel tool has been developed, piloted and evaluated: the Implementation Science Research Development (ImpRes) tool.

Biography

Louise is a Senior King's Improvement Science Fellow and Deputy Director of the Centre for Implementation Science. The Centre for Implementation Science supports health researchers and healthcare professionals apply the principles and methods of implementation science to ensure that tried and tested treatments and services are routinely available. Louise has 10 years' experience of working within the context of applied health research and has expertise in patient safety, implementation and improvement science and quality improvement in healthcare.

Louise graduated with a BSc in Psychology and subsequently completed an MSc in Research Methods in Psychology. In 2013, Louise completed a PhD at Imperial College London exploring patient safety in surgery. After completing her PhD, Louise was appointed as a postdoctoral research associate at the National Institute for Health Research Imperial Patient Safety Translational Research Centre.

Professor Oliver Howes
Professor of Molecular Psychiatry
Department of Psychosis Studies

Treating psychosis: lessons from Groundhog Day

Synopsis

Drug treatment of psychosis has not fundamentally changed in sixty years and outcomes remain generally poor. Groundhog Day has three critical lessons for our approach to improve it. In his talk, Oliver will illustrate how we have tried to embody these lessons in our research to improve the treatment of psychosis. This has identified new treatment targets now in clinical trials, and potential diagnostic approaches.

Biography

Oliver Howes is Professor of Molecular Psychiatry at the IoPPN and the MRC London Institute of Medical Sciences. His clinical work is as Consultant Psychiatrist at The Maudsley Hospital where, amongst other things, he runs a service for people with psychoses. His research interests centre on the causes and treatment of psychosis. His recent work has focused on understanding the role of dopamine and neuroinflammation in the development of psychosis, the effects of antipsychotic drugs on the brain, and the causes of cognitive impairment in schizophrenia. This work has been recognised through a number of awards including the Researcher of the Year Award from the Royal College of Psychiatrists (2017), British Association of Psychopharmacology Senior Clinical Prize (2014), Schizophrenia International Research Society Rising Star Award 2013, European Psychiatric Association Biological Psychiatry Prize (2012), and the Royal Society of Medicine Psychiatry Prize (2010). He was made an honorary associate of the European College of Neuropsychopharmacology in 2006.

Dr Ben Carter
Senior Lecturer
Department of Biostatistics & Health Informatics

Understanding the evidence behind tech is critical

Synopsis

Modern biostatistics and epidemiology underpin the same principles that enriched medicine during the days of foot peddling epidemiologists John Snow and Archie Cochrane, but we now face new challenges. Evaluation, quantification, and qualification of the evidence needs to stay the focus during the coming years, as emerging technology evolves. Understanding how, and when, an intervention is effective needs to drive both research and policy to improve patient care.

This talk will highlight three examples where technology has impacted on our health, sometimes positively allowing patients to improve their self-management of their disease. However, does increased technology always lead to a positive change? Technological advances offer clinical convenience, but may lead to poorer care for patients.

Biography

Ben is Senior Lecturer in Biostatistics at the IoPPN, and leads the King's Clinical Trials Unit – Mental Health Statistics Group. He is also both the Statistics Editor for the Cochrane Skin Group, as well as a senior lecturer at Cardiff University in Public Health. He has recently moved to the IoPPN leaving his post in Public Health at Cardiff University where he designed and implemented multiple high profile studies in psychological stress and depression. This move will allow a focus on designing and implementing further robust randomised controlled trials (RCTs) within the mental health setting. His areas of expertise include: Designing and implementing robust RCTs; cluster RCTs; epidemiology; understanding the evidence; the impact of technology on our health; health in the older person. He has published over 80 peer reviewed scientific publications.

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