Experimental Medicine Day
Friday 28 March 2014
Institute of Psychiatry, King’s College London
16 De Crespigny Park, London, SE5 8AF

Programme
Morning Sessions

9:00 – 9:30  Registration  Mezzanine

Session 1  Chair: Professor Andrew Pickles  Wolfson Lecture Theatre

9:30 – 9:45  Welcome
Professor Andrew Pickles, Cluster Lead, Experimental Medicine and Clinical Trials, NIHR BRC/U; Chair in Biostatistics, Institute of Psychiatry

9:45 – 10:45  What can we do to recover therapeutic momentum in psychiatry?
Professor Ed Bullmore, Director, Research & Development at Cambridgeshire & Peterborough NHS Foundation Trust; Vice-President, Experimental Medicine and Head, Clinical Unit Cambridge at GlaxoSmithKline; Professor of Psychiatry and Clinical Director, Behavioural & Clinical Neuroscience Institute at University of Cambridge

10:45 – 11:15  Morning tea  Mezzanine

11:15 – 12:45  Session 2  Parallel workshops

Workshop 1  Development of Ketamine as a Rapid Acting Antidepressant

Facilitators
Dr Wayne C. Drevets, Vice President, Disease Area Leader in Mood Disorders Janssen Pharmaceuticals of Johnson & Johnson Janssen Research & Development
Dr Jaz Singh, Senior Director, Experimental Medicine, Mood disorders, Neuroscience at Janssen, Pharmaceutical Companies of Johnson and Johnson, Inc.
Dr Rupert McShane, Consultant and Honorary Senior Clinical Lecturer in Psychiatry, Oxford Health NHS Foundation Trust

Room  Sir Robin Murray Lecture Theatre A, Education Hub

Workshop 2  The CAN-BIND Network: Integrating neuroimaging as part of a biomarker matrix

Facilitators
Dr Kenneth Evans, President and CEO of the Ontario Cancer Biomarker Network (OCBN); Associate Professorship, Department of Pathology and Laboratory Medicine, Queen’s University; Lecturer, Department of Psychiatry, University of Toronto
Dr Tim Salomons, Lecturer, School of Psychology and Clinical Language Sciences, University of Reading Ph.D.

Room  Small Lecture Theatre, 1st Floor

Workshop 3  A multidisciplinary approach for identification of biomarkers in mental health

Facilitators
Professor Carmine Pariante, Professor of Biological Psychiatry and Head of Section, IoP
Dr Steven Kiddle, Post Doctoral Research Worker, Biostatistics

Room  Sir Robin Murray Lecture Theatre B, Education Hub
### Workshop 4  
**Virtual reality Workshop**

**Facilitators**
Dr Lucia Valmaggia, Clinical Psychologist Senior Lecturer, Department of Psychology, Institute of Psychiatry  
Dr Jessica Fish, Lecturer in Clinical Psychology, Department of Psychology, Institute of Psychiatry

**Room**
Seminar Room 5, Education Hub

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### Afternoon Sessions

**Session 3**  
**Chair:** Dr Valeria Mondelli  
**Wolfson Lecture Theatre**

14:00 – 14:20  
**Buccal Naloxone for Opiate Overdose Reversal: First-in-Man Clinical Trial**  
Professor John Strang, Head of the Addictions Department, Institute of Psychiatry; Academic Director, Addictions Clinical Academic Group, King’s Health Partners

14:20 – 14:40  
**In search of brain signatures of mood changes: arterial spin labelling following mood induction in young people**  
Ms Nina Mikita, PhD Candidate, Institute of Psychiatry, King’s College London

14:40 – 15:00  
**(Title to be confirmed)**  
Dr Mitul Mehta, Senior Lecturer, Department of Neuroimaging, Institute of Psychiatry

15:00 – 15.30  
Afternoon tea  
Mezzanine

**Session 4**  
**Chair:** Professor Allan Young  
**Wolfson Lecture Theatre**

15:30 – 16:45  
Panel Discussion

16:45 – 17:00  
Closing remarks
Abstracts

Morning Sessions

Key note lecture - What can we do to recover therapeutic momentum in psychiatry?
Professor Ed Bullmore

Abstract

The pharmaceutical industry is generally withdrawing investment from psychiatry partly because the return on investment, such as successful delivery of new medicines for depression, psychosis and other major mental health disorders, has been poor in the last 20 years. In this talk Professor Bullmore will rehearse some of the reasons that drug discovery for psychiatry has been challenging and will suggest some strategies that might make a difference in the future. In particular, he will discuss immunopsychiatry as a potential way forward. There is growing evidence that immunological mechanisms are involved in many psychiatric disorders and refocusing development efforts from neuronal targets to immune targets could offer major advantages in terms of accessibility of mechanistically specific peripheral biomarkers and economic repurposing of existing assets and expertise in the pharmaceutical industry.

Workshops

Workshop 1. Development of Ketamine as a Rapid Acting Antidepressant

Facilitators
Dr Wayne C. Drevets, Dr Jaskaran Singh, Dr Rupert McShane

Abstract

This presentation describes clinical experience with ketamine in an open label NIHR-funded safety study, and in subsequent clinical cases. Over 400 infusions have been given to 40 cases in Oxford. Patients are treated in the recovery bay of the ECT suite alongside patients who are having ECT. This ensures adequate monitoring by staff who are experienced in dealing with treatment resistant depression and the presence of an experienced anaesthetist. Patients continue on their current antidepressants and are monitored using SMS-based mood monitoring (True Colours). The observed response rate of 29% in the formal study exactly matches the response rate at 3 days in randomised trials of ketamine. Dr McShane will describe the safety issues encountered, and his anecdotal experience of strategies for maintaining the benefit in those who respond.

Dr Singh will present the clinical trials data and clinical issues surrounding the development of ketamine as a rapid antidepressant and consider the critical clinical questions on dose, frequency, patient population and clinical trials. Dr Drevets will then present the preclinical/basal science data that address the neurobiological mechanisms underlying ketamine's rapid antidepressant effect, along with data on other agents that shown rapid antidepressant effects and appear to show neurobiological effects that converge with those of ketamine.

Room
Sir Robin Murray Lecture Theatre A

Workshop 2. The CAN-BIND Network: Integrating neuroimaging as part of a biomarker matrix

Facilitators
Dr Kenneth Evans, Dr Tim Salomons

Abstract

Depression is a complex and heterogeneous disorder with multiple aetiologies. Effective treatment outcomes are limited by the difficulty in matching patients to available treatment options. Identifying molecular, clinical and imaging signatures capable of stratifying depressive illness into biologically meaningful subtypes is therefore a critical step toward improving our understanding of these disorders as well as in developing more targeted therapies. The Canadian Biomarker Integration Network for Depression (CAN-BIND) is an ongoing multidisciplinary, multicentre initiative aimed at identifying these subtypes of depression. In this presentation, Dr Evans and Dr Salomons will discuss how depressed patients are recruited from research clinics across Canada and entered into a...
standardised treatment program during which they receive comprehensive clinical evaluations (symptom scales, cognitive batteries, detailed medical history and demographics), molecular profiling (DNA, mRNA, miRNA, proteomics), as well as a battery of neuroimaging tests (structural and functional MRI and EEG). The will also review how CAN-BIND data is stored, managed and analysed within Brain-CODE, a large-scale collaborative data platform. Once data collection is complete, CAN-BIND data (raw and processed) can not only be openly shared among researchers, but federated with similar datasets that are being collected across a variety of CNS diseases by the Ontario Brain Institute. A system of common data elements, unified imaging techniques and platforms, as well as common molecular testing protocols and approaches applied across these programs will enhance interdisciplinary comparisons. Preliminary results from CAN-BIND molecular subprojects will be presented along with future directions for international collaboration.

Room
Sir Robin Murray Lecture Theatre B, Education Hub

Workshop 3. A multidisciplinary approach for identification of biomarkers in mental health

Facilitators
Professor Carmine Pariante, Dr Steven Kiddle

Abstract
Biomarkers hold great promise for aiding diagnosis, tracking progression, tracking treatment response and recruiting subjects to prevention trials of mental health disorders. In this workshop Professor Pariante and Dr Kiddle will examine the process of identifying biomarkers in the lab, integrating complementary markers and assessing their potential utility through the use of statistical approaches.

Room
Seminar Room 5

Professor Pariante will review how and what to measure in the blood of psychiatric patients and how peripheral biomarkers related to clinical features.

Dr Kiddle, a researcher in the BRC for Mental Health Bioinformatics core, will cover regression and classification approaches to biomarker analysis, including the application of machine learning approaches for biomarker assessment. Sensitivity and specificity will be introduced and discussed in relation to clinical utility. The problem of replicability and the importance of avoiding overfitting through the use of independent test data will also be emphasised.

Room
Sir Robin Murray Lecture Theatre B, Education Hub

Workshop 4. Virtual reality Workshop

Facilitators
Ms Lucia Valmaggia, Dr Jessica Fish

Abstract
Virtual Reality (VR) is an increasingly affordable and accessible tool for use in experimental medicine. Within the BRC, we are using VR environments to measure and manipulate cognition and behaviour in ways that would otherwise be impractical, difficult to standardise and replicate, and/or lacking sufficient sensitivity. It allows us to effectively take our participants, our lab, and our scientific equipment anywhere in the world (or out of it)! This workshop will include presentations of our ongoing work, as well as our plans for the future. We will also include video demonstrations of the virtual environments we have available, and previews of emerging technologies to which we will soon have access. There will also be time for questions and discussion.

Room
Sir Robin Murray Lecture Theatre A
1. Buccal Naloxone for Opiate Overdose Reversal: First-in-Man Clinical Trial

Facilitators
Professor John Strang

Abstract
Heroin overdose represents a major cause of death around the world (UNODC/WHO, 2013). In the UK, opiates are the main contributor to drug-related deaths despite being less commonly used than other illicit drugs (ACMD, 2012).

Fatal outcome of opiate overdose can be prevented through timely administration of an injection of naloxone in emergency medical care. The MHRA (2013) has expressed recent interest in making naloxone directly accessible to opiate users and their families. However, a regulatory change to over-the-counter status remains unlikely for as long as naloxone is available in injectable form only.

In this presentation, Professor Strang will review how we are developing an injection-free naloxone formulation and have partnered with Pharmaceutical Sciences within King's to develop a lyophilised buccal naloxone tablet. He will discuss how the first step will be a pharmacokinetic trial in healthy volunteers to establish safety and dose proportionality of buccal naloxone relative to the intravenous and intramuscular injection standards, with key outcomes being Tmax and Cmax.

Professor Strang will further discuss how future efforts will examine pharmacodynamics in dependent opiate users to assess onset of action and clinical effectiveness. In order to maximise patient and public involvement, we are actively involving a group of current and former service users with personal overdose experience in the current planning and design of the study.

Room
Wolfson Lecture Theatre

2. In search of brain signatures of mood changes: arterial spin labelling following mood induction in young people

Facilitators
Ms Nina Mikita

Despite considerable progress in identifying depression in youth, important developmental obstacles in assessing and monitoring mood have yet to be overcome. Traditional clinical approaches used to assess mood work less well in young children, and diagnosis can be hampered by the presence of developmental conditions, such as autism.

In this presentation, Ms Mikita will review results from a pilot neuroimaging study performed with 21 healthy adolescents, which was a first step towards meeting the challenge of assessing mood in youth. The study included monitoring participants brain activity after they watched films designed to induce different mood states: neutral, sad and happy.

Results included being able to distinguish sad and happy mood states from the neutral condition on the basis of brain activation patterns alone. She will also discuss how this research can pave the way for developing physiological markers of mood states, which could aid with the assessment of depression in cases where the diagnosis is uncertain.

Room
Wolfson Lecture Theatre

3. (Title to be confirmed)

Facilitator
Dr Mitul Mehta

Abstract
To be confirmed

Room
Wolfson Lecture Theatre