



MnM CONFERENCES



2nd Annual

Neuroscience R&D Technologies Conference

29th - 30th September 2016, Sheraton Skyline Heathrow, London, UK

Advisory Committee 2016



Rafal Kaminski
Senior Director
Neuroscience TA
UCB Biopharma, Belgium



Marcus Kaiser
Professor of Neuroinformatics
Interdisciplinary Computing
and Complex Biosystems
(ICOS) Research Group,
School of Computing Science,
Newcastle University



Georg Terstappen
Director and Head of
Discovery Biology,
Neuroscience Discovery
AbbVie, Germany



Zameel Cader
Director and Principal
Scientist, IMI StemBANCC
University of Oxford, UK



Luc Ver Donck
Head of Alzheimer
Disease Animal Models,
Neuroscience Discovery
Janssen Pharmaceuticals,
Belgium

Event Overview:

Novel findings in the field of neuroscience are yielding new technologies and techniques to meet the critical medical needs, in the area of brain and nervous system disorders. Recent innovations have made neuroscience the most exciting field of research in modern day science. Understanding the functions of the brain and how it works, are the fastest developing areas- having implications for, treatments of life altering neurological and psychiatric illnesses. Progress in understanding the brain function and brain disorders are often enabled by innovative technology and to ensure continued advances in brain science, Industry-Academic-Government partnerships are needed. Neuroscientist researchers face tremendous challenges in developing and bringing new treatments and technologies. Despite the fact that, the challenges related to brain research are abundant, significant progress continues to be made.

The **2nd Annual Neuroscience R&D Technologies Conference**, organized by MnM Conferences, on **29-30 September 2016**, in **London, UK** - aims at creating a platform for all the stakeholders to discuss, brainstorm and find answers to the ongoing question & challenges in the neuroscience research and recent advancements in neuroscience R & D technologies.

For more information please contact Ajay at
ajay.nimbalkar@mnmmconferences.com | +91 20 30102 285



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Key Highlights:

- ✓ Imaging technologies for early go/no-go decisions
- ✓ Blood Brain Barrier in CNS Drug Discovery
- ✓ Neuroinformatics
- ✓ Computational disease drug response models
- ✓ Translational animal models
- ✓ Neuromodulation & Deep Brain Stimulation
- ✓ Patient Stratification & advanced brain monitoring
- ✓ Investing & partnering in neurotechnology
- ✓ Neuro Stem cells for drug discovery
- ✓ Biomarker and Drug Discovery – Neurodegenerative Diseases

Why attend?

- **Know** about the advancements and emerging trends in application of technology in developing neurological treatments
- **Learn** about cutting edge technologies in animal and translational model for CNS Drug discovery
- **Brainstorm** with global heads of neuroscience from the industry and Academics
- **Case studies** presented from leading technology collaborations

Who should attend?

From Pharmaceutical and Academics/Research Institutes

Chief Scientific Officer/Directors/Heads/VP/Senior Scientists/ Principal Scientist/ Neuroscientists/ Project Leader in:

- ✓ Neuropharmacology
- ✓ Neuroinformatics
- ✓ Neuroscience Discovery
- ✓ Pre-clinical research
- ✓ CNS Discovery
- ✓ Integrative Neuroscience
- ✓ Neuroimaging / Brain Imaging
- ✓ Neurotechnology
- ✓ Neurodegenerative diseases
- ✓ Neurology R&D
- ✓ Translational Neuroscience
- ✓ Neuroscience
- ✓ Computational Neuroscience
- ✓ Neuroengineering
- ✓ Neuromorphic engineering

Expert Speaker Panel



Trevor W. Robbins
Professor, **Cognitive Neuroscience & Experimental Psychology** | Director, **Behavioural and Clinical Neuroscience Institute** Head of Dept., **Psychology, University of Cambridge, UK**
Past President of the British Neuroscience Association & The Brain Prize 2014 Joint Award Winner



Georg Terstappen
Director and Head of Discovery Biology, **Neuroscience Discovery AbbVie, Germany**



Ago Rinken
Head of Chair, Professor of Bioorganic Chemistry **Institute of Chemistry, University of Tartu, Estonia**



Eugenii A. (Ilan) Rabiner
Head of Imaging Applications & Chief Medical Officer, **Imanova** Reader in Molecular Neuroimaging, Centre for Neuroimaging Sciences, IoPPN, **King's College, London, UK**



Winston Hide
Chair of Bioinformatics and Computational Biology **Sheffield Institute for Translational Neuroscience, University of Sheffield, UK**



Kei Cho
Chair of Neuroscience, Head - Translational Neuroscience Research Group, MRC Centre for Synaptic Plasticity, **University Of Bristol, UK**



Thomas R. Jahn
Lab Head, Disease Model Systems, Neuroscience Discovery– Biology Department **AbbVie, Germany**



Rafal Kaminski
Senior Director Neuroscience TA **UCB Biopharma, Belgium**



Bettina Platt
Chair in Translational Neuroscience, School of Medical Sciences **University of Aberdeen, UK**



Luc Ver Donck
Head of Alzheimer Disease Animal Models, Neuroscience Discovery **Janssen Pharmaceuticals, Belgium**



Chih-Liang Chin
Director and Head, Singapore Translational Biomarker **Merck Sharp & Dohme (MSD), Singapore**



Tilo Kunath
Group Leader, Parkinson's UK Senior Research Fellow, **MRC Centre for Regenerative Medicine & Evan MacDonald Centre for Motor Neurone Disease Research, The University Of Edinburgh, UK**



Hugh Nuthall
Research Advisor **Eli Lilly, UK**



Dr. Olaf Schroeder
Chief Executive Officer **NeuroProof GmbH, Germany**



Marcus Kaiser
Professor of Neuroinformatics Interdisciplinary Computing and Complex Biosystems (ICOS) Research Group, **School of Computing Science, Newcastle University, UK**



Janet Nicholson
Director, CNS Diseases Research **Boehringer Ingelheim, Germany**



Zameel Cader
Director and Principal Scientist, IMI StemBANCC **University of Oxford, UK**



Thomas Knöpfel
Chair of Optogenetics and Circuit Neurosciences Division of Brain Sciences, Department of Medicine, **Imperial College London, UK**



Yang (Ted) D. Teng
Associate Professor of Surgery and PM&R, **Harvard Medical School, USA**
Director, **Laboratory of SCI & Stem Cell Biology Research**



Alexander D. Crawford
Principal Investigator, Chemical Biology Group **Luxembourg Centre for Systems Biomedicine (LCSB), Université du Luxembourg**



Sandra Robelet
Pre-Clinical Study Director **Synosome, France**



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2nd Annual

Neuroscience R&D Technologies Conference

29th - 30th September 2016, London, UK

Day 1, 29th September 2016

08:15 Registration

08:55 Welcome note from MnM Conferences

09:00 Opening Remarks from the Chairman

09:10 Keynote Presentation

Trevor W. Robbins, Professor, **Cognitive Neuroscience and Experimental Psychology** | Director, **Behavioural and Clinical Neuroscience Institute** Head of Dept., **Psychology, University of Cambridge, UK**

Target identification & validation technologies

09:40 Developing stem cell models for neuroscience disease models and drug discovery

- Stem cell lines and differentiation protocols relevant to a wide range of neurological disorders are now available from initiatives such as StemBANCC, HiPSC, CIRM
- Cellular phenotypes arising from monogenic forms neurological disorders are now well established and can be used to understand disease mechanism and gene-environment interactions
- Identifying therapeutically relevant cellular phenotypes in common complex traits is an outstanding problem but methods to elucidate these mechanisms are being developed

Zameel Cader, Director and Principal Scientist, IMI StemBANCC, **University of Oxford, UK**

10:10 *Solution Provider Presentation; Please contact Abhinay Roy at abhinay.roy@mnmcconferences.com*

10:25 Morning Refreshments and Poster Presentation | One-to-One Networking Meetings

11:10 Systems approaches to identification of drug targets in neuroscience

- Lessons from the past: reductionist, single-target view on neurodegenerative diseases
- The concept of master regulators or disease hubs
- Systems approach to the integration of preclinical and clinical genetics data
- Identification of druggable targets controlling disease hubs
- Opportunities for streamlined target validation and preclinical proof-of-concept studies

Rafal Kaminski, Senior Director Neuroscience TA, **UCB Biopharma, Belgium**

11:40 Human pluripotent stem cells to model and treat Parkinson's disease

Tilo Kunath, Group Leader, Parkinson's UK Senior Research Fellow, **MRC Centre for Regenerative Medicine & Euan MacDonald Centre for Motor Neurone Disease Research, The University Of Edinburgh, UK**

12:10 *Solution Provider Presentation; Please contact Abhinay Roy at abhinay.roy@mnmcconferences.com*

12:40 Panel Discussion: Human stem cell-derived disease models vs. rodent cells/tissues in drug discovery

Panelists:

-**Zameel Cader**, Director and Principal Scientist, IMI StemBANCC, **University of Oxford, UK**

-**Rafal Kaminski**, Senior Director Neuroscience TA, **UCB Biopharma, Belgium**

-**Tilo Kunath**, Group Leader, Parkinson's UK Senior Research Fellow, **MRC Centre for Regenerative Medicine & Euan MacDonald Centre for Motor Neurone Disease Research, The University Of Edinburgh, UK**

13:10 Lunch and Poster Presentation | One-to-One Networking Meetings

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14:10 Dynamics of ligand binding to GPCR. Implementation of novel fluorescent methods

- The ligand binding rate and life-time of the formed complex has big impact to the efficiency of signal transduction and drug potency.
- Often the dynamics of ligand binding cannot be described with the simplest one-step binding event, while there has to be taken into account of conformational dynamics of binding process itself, but also several ortho- and allosteric modulations.
- Novel fluorescence-based assays have opened novel possibilities for characterization ligand binding dynamics: FI, FA, FCCS, FRET – comparison with other methods available.
- We have implemented fluorescence anisotropy-based assay system for characterization of ligand binding dynamics to different GPCR – advantages and shortcomings of this approach.
- The complex binding mechanism substantially affects ligands' apparent affinities, which in equilibrium experiments varied more than three orders of magnitude, depending on the assay design used. Taking account of ligand binding dynamics allow to avoid this kind of discrepancies.

Ago Rinken, Head of Chair, Professor of Bioorganic Chemistry, Institute of Chemistry, University of Tartu, Estonia

Translational Imaging

14:40 Presentation By:

Dr. Olaf Schroeder, Chief Executive Officer, **NeuroProof GmbH, Germany**



14:55 New Developments in the Imaging of Neurodegeneration

- Molecular Markers of Neurodegenerative Pathophysiology
- Misfolded proteins
- Neuroinflammation
- Metabolic stress

Eugenii A. (Ilan) Rabiner, Head of Imaging Applications & Chief Medical Officer, **Imanova**
Reader in Molecular Neuroimaging, Centre for Neuroimaging Sciences, IoPPN, King's College, London

15:25 *Solution Provider Presentation; Please contact Abhinay Roy at abhinay.roy@mnmcconferences.com*

15:40 Afternoon Refreshments and Poster Presentation | One-to-One Networking Meetings

16:25 Translational Imaging Biomarkers for CNS Drug Discovery and Development

- Leverage imaging biomarkers to make early No/No-Go decisions for drug discovery
- Develop novel imaging biomarkers for pharmacodynamic responses or drug safety in awake rodent and nonhuman primate
- Enable imaging biomarkers for human translation to der-risk clinical development

Chih-Liang Chin, Director and Head, Singapore Translational Biomarker, **Merck Sharp & Dohme (MSD), Singapore**

16:55 Case Study: Using PET/SPECT Technologies in Detecting Amyloid Protein Depositions

17:25 How to Improve the Predictive Therapeutic Accuracy in Pre-Clinical Models by the Influence of Imaging and Biomarker

17:55 Closing Remarks from the Chairman

18:00 Drinks Reception & Networking

End of Day 1

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Day 2, 30th September 2016

08:15 Registration

08:55 Welcome note from MnM Conferences

09:00 Opening Remarks from the Chairman

Georg Terstappen, Director and Head of Discovery Biology, Neuroscience Discovery, **AbbVie, Germany**

09:10 Keynote: Overcoming the Blood-Brain Barrier- The Extra Challenge for CNS Drug Development

Georg Terstappen, Director and Head of Discovery Biology, Neuroscience Discovery, **AbbVie, Germany**

Neuroinformatics & Computational Neurosciences

09:40 Data driven systems medicine approaches to Alzheimer's - can we make the process of target discovery more systematic?

- The emerging role of genomics and systems biology research in target discovery provides a plethora of opportunities to leverage knowledge across multiple domains for target discovery. There is a need for systematic understanding of target choice.
- Genomics provides a platform for discovery of variants and associated genes that confer predisposition to AD. Functional studies can reveal key roles for genes discovered in this manner but targeting choices are confounded by both existing understanding of specific genes of interest, previous failures in drug trials, and a lack of consistent measures for deciding upon the likely viability of a specific gene as a target.
- By integrating multiple layers of genomic data at systems level it is possible to provide deeper insights into the molecular mechanisms related to disease initiation and progression, and this can guide pathway-based biomarker and drug target identification.
- Systematic generation of models that provide insight into ranked pathways and processes is conferring needed context to the most useful targets for intervention, and for deeper understanding of the value of a biomarker.

Winston Hide, Chair of Bioinformatics and Computational Biology, Sheffield Institute for Translational Neuroscience, **University of Sheffield, UK**

10:10 *Solution Provider Presentation; Please contact Abhinay Roy at abhinay.roy@mnmcconferences.com*

10:25 Morning Refreshments and Poster Presentation | One-to-One Networking Meetings

11:10 Connectome-based Computational Models of Treating Brain Network Disorders

- Where to treat: finding network targets for invasive and non-invasive treatment of brain disorders
- Whether to treat: Predicting the outcome of epilepsy surgery: success and failure in reducing seizure frequency
- How to treat: Finding optimal stimulation protocols for optogenetic neuromodulation of human brain tissue

Marcus Kaiser, Professor of Neuroinformatics, **Interdisciplinary Computing and Complex Biosystems (ICOS) Research Group, School of Computing Science, Newcastle University**

Neuromodulation & Deep Brain Stimulation

11:40 Optogenetics in Preclinical Neuroscience and Psychiatry Research

Thomas Knöpfel, Chair of Optogenetics and Circuit Neurosciences, Division of Brain Sciences, Department of Medicine, **Imperial College London**

12:10 *Solution Provider Presentation; Please contact Abhinay Roy at abhinay.roy@mnmcconferences.com*

12:40 A Circuits and Symptoms Approach to Drug Discovery in Psychiatry

- An RDoC-inspired approach to psychiatry
- Using optogenetics to explore brain circuits
- New drug target identification

Janet Nicholson, Director, CNS Diseases Research, **Boehringer Ingelheim, Germany**

13:10 Lunch and Poster Presentation | One-to-One Networking Meetings

14:10 Computational Model to Understand the Effect of Deep Brain Stimulation in Whole Brain

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Advances in Animal Models

14:40 Development of Animal Models to Support Neurodegenerative Diseases Drug Discovery

Hugh Nuthall, Research Advisor, **Eli Lilly, UK**

15:10 Preclinical strategy combining in vitro and in vivo models to assess drug efficacy in Neurodegenerative disease

- Preclinical strategy to assess the efficacy of a candidate compound in Neurodegenerative disease
- A predictive association of in vitro and in vivo rodent models will be detailed to characterize the effects of a candidate compound in neuroprotection and/or in symptomatic efficacy
- Several predictive models in vitro and in vivo models coupled to different techniques will be presented

Sandra Robelet, Pre-Clinical Study Director, **Syncrosome, France**



15:25 Animal models in AD-research: Mechanistic vs. Functional

- Genetic animal models are diverse and serve various purposes
- These models have translational value, when applied within their limitations
- Translational value of the models is limited

Luc Ver Donck, Head of Alzheimer Disease Animal Models, Neuroscience Discovery, **Janssen Pharmaceuticals, Belgium**

15:55 Afternoon Refreshments and Poster Presentation | One-to-One Networking Meetings

16:25 Zebrafish Discovery Platform and transgenic models of rare/orphan neurological diseases

Dr. Alexander D. Crawford, Principal Investigator, Chemical Biology Group, **Luxembourg Centre for Systems Biomedicine (LCSB), Université du Luxembourg**

16:55 Drosophila models for neurodegenerative disease

- Introducing today's Drosophila toolbox for target engagement and proof-of-concept studies
- What have we learned from Drosophila models of Alzheimer's Disease?
- Current approaches to establish mechanistically novel Alzheimer's Disease models

Thomas R. Jahn, Lab Head, Disease Model Systems, Neuroscience Discovery- Biology Department, **AbbVie, Germany**

17:25 Closing remarks from the Chairman

End of Conference