17th International Meeting on Monitoring Molecules in Neuroscience
March 25th-28th 2018, University of Oxford Mathematics Institute
2018.monitoringmolecules.org

Full Programme - Non-final draft

(draft date 10.01.2018)

Sunday 25th	
14:00 – 15:20	Mathematics Institute, Andrew Wiles Building **Badge Pick-up** and Coffee
15:20 – 15:25	**Welcome to MMiN** (Chair Stephanie Cragg) (L1)
15:25 – 15:30	**Welcome from the President of MMiN** (L1)
15:30 – 17:30	**Opening Symposium 1 - Marianne Fillenz Legacy Plenary Symposium** (L1) *Chair: Martyn Boutelle*
	Plenary Symposium to include: **John Lowry**, Maynooth University, Ireland "Adventures in Electrochemistry: Monitoring Molecules in Real-Time to Understand Brain Function" **Martyn Boutelle**, Imperial College London, UK "Real-time monitoring of neurochemistry - from grooming responses to human traumatic brain injury" **Parry Hashemi**, University of South Carolina, USA "Fundamentally novel perspectives on psychiatric diseases with microengineered, electrochemical detection platforms"
17:30 – 18:00	Walk to the Museum of Natural History (5-10 mins)
18:30 – 19:30	Museum of Natural History Lecture Theatre **Plenary Lecture - David Attwell** UCL, UK "Control of cerebral and cardiac blood flow by capillary pericytes in health and disease" *Chair: David Bannerman*
19:30 – 21:00	Museum of Natural History **Welcome Reception and Supper**

Monday 26th

09:00 – 10:00	Maths Institute, L1 **Plenary Lecture - Andrew Ewing** Chalmers University, Sweden SPONSORED BY THE INTERNATIONAL JOURNAL OF MOLECULAR SCIENCES "Measuring synaptic vesicles using cellular electrochemistry and nanoscale molecular imaging" *Chair: Nicola Sibson*	
10:00 – 10:30	Coffee break	
	Symposium 2 (L1) **Location Matters: Anatomical and Functional Specialization of Dopamine Signals** *Chairs: Anne Collins, Ingo Willuhn*	**Symposium 3** (L2) **New Advances in Monitoring the Release and Function of Neuropeptides in the Brain** *Chairs: Leslie Sombers, Paul Slesinger*
10:30 – 10:35	Chairs' Introduction	Chairs' Introduction
10:35 – 11:00	**Paul Dodson**, University of Oxford, UK "Heterogeneity in the encoding of behaviour by midbrain dopamine neurons"	**Paul Slesinger**, Icahn School of Medicine at Mount Sinai, USA "Development of optical sensors for detecting neuropeptide release *in vivo*"
11:00 – 11:25	**Anne Collins**, UCLA, USA "Nucleus accumbens acetylcholine modulates cue-evoked dopamine to regulate cue-motivated reward-seeking"	**Leslie Sombers**, North Carolina State University, USA "Chasing the Enkephalins: Electrochemical Measurements of Real-Time Opioid Peptide Fluctuations in the Midbrain and Striatum"
11:25 – 11:50	**Josh Berke**, UCSF, USA "Forebrain dopamine value signals are independent of midbrain dopamine cell firing"	**Elyssa Margolis**, UCSF, USA "Striking differences in the neuronal actions of endogenous opioid peptides with similar binding profiles"
11:50 – 12:15	**Ingo Willuhn**, Netherlands Institution for Neuroscience, Netherlands "Regional specificity of striatal dopamine signaling during reward learning"	**Lakshmi Devi**, Icahn School of Medicine at Mount Sinai, USA "Exploring the Mysteries of the Endogenous Opioid System"
12:15 – 12:30	**Julie Fudge**, University of Rochester Medical Center, USA "Dopamine and CRF: broadening the view"	**Gianluigi Tanda**, NIDA, USA "Systemic oxytocin affects the reinforcing and neurochemical effects of methylphenidate"
12:30 – 12:45	**Armin Lak**, University College London, UK "Projection-specific roles of dopamine neurons in decision making"	**Zhenpeng Qin**, University of Texas at Dallas, USA "Two-photon uncaging of neuropeptides"
12:45 – 13:45	Lunch in atrium exhibit area	13:15-13:45 **Lunchtime Workshop** "Overcoming gender barriers in science" *Chair: Niki Sibson*
13:45 – 15:30	**Poster Session 1** With coffee	
15:30 – 17:30	**Symposium 4** (L1) **Gaining Novel Molecular Insights into CNS Disease Processes with Electrochemical Sensors and Biosensors** *Chairs: Gary Gilmour, John Lowry*	**Symposium 5** (L2) **Neurobiology of Nutrient Selection** *Chairs: Jaime McCutcheon, Barbara Ferry*
15:30 – 15:35	Chairs' Introduction	Chairs' Introduction

15:35 – 16:00	**Ilse Smolders**, Vrije Universiteit Brussels, Belgium "Chemogenetic modulation of specific brain cell types for monitoring gliotransmitter and neuropeptide release"	**Denis Burdakov**, The Francis Crick Institute London, UK "Hypothalamic control of action-selection"
16:00 – 16:25	**Kelly Allers**, Boehringer Ingelheim, Germany "Glutamate Biosensors: an Industry Experience"	**Samantha Fortin**, University of Illinois at Chicago, USA "Physiological need gates taste-selective phasic dopamine responses in the nucleus accumbens"
16:25 – 16:50	**Jack Mellor**, University of Bristol, UK "Coordinated acetylcholine release in prefrontal cortex and hippocampus measured by choline biosensors is associated with arousal and reward on distinct timescales"	**Stephanie Borgland**, University of Calgary, Canada "Acute fasting alters dopamine release in a region and sex-dependent manner"
16:50 – 17:15	**Jennifer Li**, Eli Lilly & Co. Ltd, UK "The utility of functional connectivity measures in AD mouse models"	**Carrie Ferrario**, University of Michigan, USA "Oral and gastric sucrose produce alterations in striatal glucose, glutamate, glutamine, and GABA in obesity-prone vs. obesity-resistant rats; implications for obesity"
17:15 – 17:30	**Michael Johnson**, University of Kansas, USA "Mechanisms of chemotherapy-induced impairments in executive function"	**Anna Thinnes**, University of Frankfurt, Germany "Food-induced changes of acetylcholine in mouse hypothalamus"
17:30	Free evening	
17:30	**Closed Business Meeting for Scientific Advisory Board**	

Tuesday 27th

09:00 – 10:00	**Plenary Lecture - Bita Moghaddam** OHSU, USA (L1) "Dopamine modulation of prefrontal cortex activity is manifold and operates at multiple temporal and spatial scales" *Chair: Sara Jones*		
10:00 – 10:30	Coffee break		
	Symposium 6 (L1) **Explorations of the Molecular Basis of Psychiatric Illnesses** *Chair: Liz Tunbridge*	**Symposium 7** (L2) **Exploring Extracellular Space on Different Spatial Scales** *Chairs: Charles Nicholson, Sabina Hrabetova*	
10:30 – 10:35	Chair's Introduction	Chairs' Introduction	
10:35 – 11:00	**Jeff Dalley**, University of Cambridge, UK "Distinct contributions of cortical and subcortical molecules to behavioural impulsivity: beyond the usual suspects"	**Sabina Hrabetova**, SUNY Downstate Medical Center, USA "Exploring the structure of brain extracellular space with diffusion analysis using Real Time Iontophoresis"	
11:00 – 11:25	**Oliver Howes**, MRC LMS and KCL, UK "The role of dopamine and glutamate in psychotic disorders: multi-modal clinical and preclinical imaging findings"	**Charles Nicholson**, NYU, USA "Integrative Optical Imaging of macromolecular diffusion reveals origins of structural hindrance in extracellular microenvironment"	
11:25 – 11:50	**Simon Lovestone**, University of Oxford, UK "Blood protein biomarkers and therapeutics for Alzheimer's disease"	**Dmitri Rusakov**, UCL, UK "Measuring nanoscale diffusion in the synaptic cleft and beyond with time-resolved fluorescence anisotropy"	
11:50 – 12:15	**Uzay Emir**, Purdue University, USA "MR spectroscopic studies of the brain in psychiatric disorders"	**Juan Varela**, CNRS and University of Bordeaux, France "Super-resolving the nanoscale organisation of the extracellular space of the brain tracking carbon nanotubes"	
12:15 – 12:30	**Marios Panayi**, University of Oxford, UK "Glutamatergic dysfunction leads to a hyper-dopaminergic phenotype: Linking dopamine to aberrant salience"	**Robert Colbourn**, SUNY Downstate Medical Center, USA "Dynamic volume changes of the brain's extracellular space underlying seizures"	
12:30 – 12:45	**Lauren Burgeno**, University of Oxford, UK "Diametric changes in striatal dopamine release underlie drug-taking and drug-seeking behaviors"	**Scott Shippy**, University of Illinois at Chicago, USA "Miniaturized push-pull perfusion sampling of hippocampal slices"	
12:45 – 14:00	Lunch in atrium exhibit area	13:00-14:00 **Publishing Workshop** Paul Bolam, Co-Editor in Chief, EJN, **"**How a journal handles your submitted papers"	
	Symposium 8 (L1) ***In Vitro* and *In Vivo* Single Neuron Approaches to Study Neurodegeneration** *Chair: Marie-Francoise Chesselet*	**Symposium 9** (L2) **Nitric Oxide Signaling from Molecule to Brain** *Chairs: Stephane Marinesco, Anne Meiller*	**Symposium 10** (L3) **Bad Things Happen: The Role of Phasic Dopamine Signaling in Learning About, and Responding to, Negative Stimuli** *Chairs: Eleanor Simpson, Mitch Roitman*
14:00 – 14:05	Chair's Introduction	Chairs' Introduction	Chairs' Introduction

14:05 – 14:30	**Nader Pourmand**, UC Santa Cruz, USA "Nanopipette technology for analysis of single living cells and subcellular compartments"	**Roland Malli**, Medical University of Graz, Austria "Shining Light on Cellular Nitric Oxide and Potassium Signals Using Genetically Encoded Probes"	**Abigail Kalmbach**, Columbia University, USA "Knowing when to stop: dopamine encoding of inhibitory cues in the ventral striatum"
14:30 – 14:55	**Steven Finkbeiner**, Gladstone, UCSF, USA "Development of a new biosensor and use of convolutional neural networks to reliably detect cell death *in vitro* and *in vivo*"	**Mark Schoenfisch**, UNC, USA "A durable permselective nitric oxide electrochemical sensor for continuous, in situ monitoring of macrophage activity"	**Bo Li**, Cold Spring Harbour Laboratory, USA "The amygdala circuits in the regulation of aversive learning "
14:55 – 15:20	**Genevieve Rougon**, CNRS Marseille, France "Quantitative intravital imaging of the neuroimmune cellular interactions in the pathological CNS"	**Anne Meiller**, Université Claude Bernard, France "*In vivo* brain nitric oxide detection using fluorinated xerogel-coated carbon fiber microelectrodes"	**Erik Oleson**, University of Colorado, USA "A transient dopamine signal represents avoidance value and causally influences the demand to avoid"
15:20 – 15:45	**Francis Szele**, University of Oxford, UK "Imaging neurogenesis and cancer in the mammalian brain"	**Anthony West**, Rosalind Franklin University, USA **"**Nitric oxide signalling in corticostriatal circuits: implications for the treatment of Huntington's disease"	**Matthew Roesch**, University of Maryland, USA "A transient dopamine signal represents avoidance value and causally influences the demand to avoid"
15:45 – 16:00	**Charmaine Lang**, Oxford Parkinson's Disease Centre, UK "Single cell sequencing reveals HDAC4 as a regulator of cellular phenotypes in Parkinson's iPSC-derived dopamine neurons"	**Binyamin Hochner**, Hebrew University, Israel "Long-term potentiation expression and maintenance in the octopus vertical lobe is mediated by long-term elevation in nitric oxide concentration"	**Evgeny Budygin**, Wake Forest School of Medicine, USA "Exploring phasic changes in striatal dopamine release under the effect of negative stimuli"
16:00 – 17:45	**Poster Session 2** With wine		
17:45 – 18:30	**Open Business Meeting** (L1)		
18:30	Free evening		

Wednesday 28th

09:00 – 10:00	**Plenary Lecture - Ann Graybiel** MIT, USA (L1) SPONSORED BY THE EUROPEAN JOURNAL OF NEUROSCIENCE "Steps toward identifying functions of the striosome-matrix organization of the striatum" *Chair: Mark Walton*	
10:00 – 10:30	Coffee break	
	Symposium 11 (L1) **A Reversal of Fortune for Peptides and Endocannabinoids: from Poor Cousins to Rich Regulators of Brain Microcircuits** *Chairs: Margaret Rice, Anushree Karkhanis*	**Symposium 12** (L2) **Towards Microdialysis 2.0 – a Faster, Smaller, Smarter Microdialysis for Neurochemical Monitoring** *Chairs: Martyn Boutelle, Steve Weber*
10:30 – 10:35	Chairs' Introduction	Chairs' Introduction
10:35 – 11:00	**Rodrigo España**, Drexel University, USA "Hypocretin/Orexin influences dopamine neurotransmission and cocaine-associated behavior"	**Stephen Weber**, University of Pittsburgh, USA "Improving microdialysis/online liquid chromatography capability: Higher time resolution for dopamine and serotonin and peptide quantitation in dialysate"
11:00 – 11:25	**Michael Beckstead**, Oklahoma Medical Research Foundation, USA "Actions of the modulatory peptide neurotensin on inhibitory input to midbrain dopaminergic neurons"	11:00 – 11:12 **Martin Eysberg,** Antec Scientific, Netherlands. "Method development in neurotransmitter analysis to improve selectivity, sensitivity and robustness" 11:13 – 11:25 **Thomas Birngruber**, Joanneum Research, Austria. "Cerebral open flow microperfusion – a sampling tool for long-term monitoring of transport across the BBB"
11:25 – 11:50	**Jyoti Patel**, NYU School Med., USA "Peripheral peptides insulin and leptin target striatal cholinergic interneurons to enhance dopamine release"	**Anne Andrews**, UCLA, USA "tbc"
11:50– 12:15	**Joseph Cheer**, University of Maryland School of Medicine, USA "Endocannabinoids on cortical terminals orchestrate local modulation of dopamine release in the nucleus accumbens"	11:50 – 12:02 **Chi Leng Leong**, Imperial College London, UK. "Digitising microdialysis - faster online microdialysis of neuro-metabolism using droplet microfluidics" 12:03 – 12:15 **Alberto Morales**, University of Guadalajara, Mexico. "Glutamate measurement online and at high temporal resolution, using a new microdialysis procedure and an optic device"
12:15 – 12:30	**Anushree Karkhanis**, Wake Forest School of Medicine, USA "Adolescent social isolation augments kappa opioid receptor function in the nucleus accumbens and basolateral amygdala of rats"	12:15 – 12:40 **Robert Kennedy**, University of Michigan, USA "Microfabricated Sampling Probes: Challenges and Opportunities"
12:30 – 13:30	Lunch in atrium exhibit area	
	Symposium 13 (L1) **Expanding the Reach of Voltammetry Beyond Dopamine** *Chairs: Jill Venton, Sara Jones*	**Symposium 14** (L2) **Co-transmission in the Nervous System: Unlikely Pairing of Dopamine, GABA, Glutamate, and ACh** *Chairs: Nicolas Tritsch, Yan-Feng Zhang*
13:30 – 13:35	Chairs' Introduction	Chairs' Introduction

13:35 – 14:00	**Zoe McElligott**, UNC Chapel Hill, USA "Optogenetics-assisted fast-scan cyclic voltammetry for the detection of serotonin and norepinephrine"	**Jimmy Zhou**, Yale University School of Medicine, USA "Co-transmission of classic excitatory and inhibitory neurotransmitters in the retina"
14:00 – 14:25	**Kenneth Kishida**, Wake Forest Sch. Med, USA "Simultaneous detection of dopamine, serotonin, and norepinephrine using a machine learning based-approach to FSCV"	**Louis-Eric Trudeau**, University de Montréal, Canada "On the function and regulation of glutamate co-release by dopamine neurons"
14:25 – 14:50	**Jill Venton**, University of Virginia, USA "Mechanism and function of spontaneous adenosine transients"	**Stephen Rayport**, Columbia University, USA "Functional connectome mapping of dopamine neuron glutamate cotransmission across the striatum"
14:50 – 15:15	**Lanqun Mao**, Beijing National Laboratory for Molecular Sciences, China "*In vivo* electrochemistry to understand physiological roles of ascorbate"	**Yan-Feng Zhang**, University of Oxford, UK "Assessing GABA co-transmission from dopamine neurons and its function"
15:15 – 15:30	**Ernesto Solis**, NIDA, USA "Changes in brain oxygen levels induced by heroin and fentanyl: evaluation using high-speed amperometry in freely-moving rats"	**Bradley Roberts**, University of Oxford, UK "Investigating the implications of GABA co-storage in dopamine axons on dopamine transmission"
15:30 – 16:00	Coffee break	
	Symposium 15 (L1) **Molecular Monitoring and Modulation During Fear and Anxiety** *Chair: Trevor Sharp*	**Symposium 16** (L2) **Pre-degenerative Changes in the Dopaminergic System in Parkinson's Disease** *Chairs: Sarah Threlfell, Nigel Maidment*
16:00 – 16:05	Chairs' Introduction	Chairs' Introduction
16:05 – 16:30	**Andrew Holmes**, NIAAA, USA "Monitoring and modulating neural circuits during fear"	**Nigel Maidment**, UCLA, USA "Probing dopamine transmission in alpha-synuclein and LRRK2 rodent models of Parkinson's disease using microdialysis and FCV"
16:30 – 16:55	**Inga Neumann**, Universität Regensburg, Germany "Monitoring and chemogenetic manipulation of oxytocin release in distinct brain regions in social behaviour and fear"	**Jochen Roeper**, Goethe University, Germany "Mutant α-synuclein enhances firing frequencies in dopamine substantia nigra neurons by oxidative impairment of A-type potassium channels"
16:55 – 17:20	**Nicolas Singewald**, University of Innsbruk, Austria "Molecular monitoring and modulation of dopamine in aberrant fear processing"	**Sarah Threlfell**, University of Oxford, UK "Pre-degenerative deficits in dopamine transmission in an alpha-synuclein mouse model of Parkinson's disease"
17:20 – 17:45	**David Bannerman**, University of Oxford, UK "*In vivo* measurement of tissue oxygen and neuronal activity during fear behavior: understanding the role of serotonin in emotion"	**Thomas Barber**, University of Oxford, UK "Multimodal neuroimaging in REM sleep behaviour disorder reveals evidence of prodromal neurodegeneration"
17:45 – 18:00	**Changwoo Seo**, Cornell Univ, USA "Environmental valence modulates dorsal raphe serotonin and GABA neural dynamics"	**Katherine Brimblecombe**, Univ. Oxford, UK "Regulation of L-type calcium channel role in striatal dopamine release: insights for PD"
18:00 – 19:00	Free time	
19:00 – late	Somerville College **Drinks Reception** (19:00) **and Conference Dinner** (19:45), followed by late bar, tbc	