



Connectome 2019

Birmingham, UK

Programme

Thursday 3 – Friday 4
October 2019
VOX Centre, Birmingham

Founding funders



UK Dementia
Research Institute



Alzheimer's
Research
UK

Day 1

Thursday 3 October

10:00 – 10.30	Registration and bag drop
10:30 – 10.45	Welcome – Bart De Strooper and Adrian Ivinson
10:45 – 11.30	Keynote: Don Cleveland Designer DNA drug therapy for neurodegenerative disease
11:30 – 11.50	Break
11:50 – 12.10	Vincent Dion - Gene editing at expanded CAG/CTG repeats: making a long story short
12:10 – 12.30	Daniel Jutzi - Bipartite snRNA interactions at the core of FUS' roles in splicing and neurodegeneration
12:30 – 12.50	Tommaso Vannocci - New methodologies to understand the time dimension of oxidative stress
12:50 – 13.10	Josef Priller - Heterogeneity of human microglia in health and disease
13:10 – 13.30	Soyon Hong - More than bystanders in dementia – understanding what microglia do
13:30 – 14.30	Lunch
14:30 – 15.00	Keynote: Dave Sharp - Care Research & Technology Centre
15:00 – 15.20	Payam Barnaghi - Machine learning and connected sensors for dementia care
15:20 – 15.40	Viola Volpato - The first human single cell atlas of the substantia nigra reveals cell-type specific pathways associated with the genetic risks of Parkinson's and other diseases
15:40 – 16.00	Nathan Skene - Genetic identification of cell types underlying brain disorders and cognitive traits
16:00 – 16.30	Break
16:30 – 17.00	Keynote: Karen Duff - Pathogenic mechanisms in the tauopathies
17:00 – 17.30	Poster blitz 1
17:30 – 19.00	Poster social
19:30 – 00.00	Reception & Dinner



Day 2

Friday 4 October

06:00 – 08.30 **Breakfast and room check out**

08:30 – 09.15 Keynote: **Nick Fox** - The many faces of Alzheimer's disease: clinical features and heterogeneity

09:15 – 09.45 Poster blitz 2

09:45 – 11.15 Poster social

11:15 – 12.45 **Theme breakouts**

1. Neuroinflammation (Chair: Hugh Perry)
 2. Vascular role in NDG (Chair: Joanna Wardlaw)
 3. Genetic Therapies (Chairs: Chris Shaw & Nick Fox)
 4. Multiomics Brain Atlas (Chair: Paul Matthews)
 5. Bioinformatics (Chairs: Caleb Webber & Valentina Escott-Price)
 6. Animal Models (Chair: Frances Wiseman)
 7. Centre Managers (with HQ)
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12:45 – 13.45 **Lunch**

13:45 – 14.05 **David Rubinsztein** - Nutrient regulation of autophagy

14:05 – 14.25 **Yu Ye** - Untangling dementia with the proteasome system

14:25 – 14.45 **Heather Smith** - The astrocytic unfolded protein response causes non-cell autonomous neuronal degeneration

14:45 – 15.15 **Break**

15:15 – 15.35 **Joanna Wardlaw** - Cerebral small vessel disease is a relapsing and remitting neurodegenerative disorder

15:35 – 16.15 The Annual Director's Science Address - **Bart De Strooper**

16:15 – 16.30 What's next – **Bart and Adrian**



Poster Blitz

Numbers & Titles

Day 1

UK DRI at UCL

- 1 Physiological alpha-Synuclein multimers are decreased in cortical native brain tissue from DLB and sporadic PD patients**
Laura de Boni, Elodie Martin, John Sanderson, Haiyang Jiang, Adam Cantlon, Matteo Rovere, Lei Liu, Aurelia Hays Watson, Mel Feany, Zane Jaunmuktane, Tammaryn Lashley, Ulf Dettmer, Tim Bartels
- 2 De-regulated Wnt signaling in AD via microglia-derived Dkk2 – a potential novel disease mechanism**
Dominic Aghaizu
- 3 Developing sensitive bioassays to measure huntingtin protein species in Huntington's disease**
Christian Landles, Rebecca E. Milton, Aikaterini S. Papadopoulou, Emma Armstrong, Anastasia Khvorova, Paul Whiting, Gillian P. Bates
- 4 MSH3 modifies somatic instability and disease severity in Huntington's and myotonic dystrophy type 1**
Michael Flower
- 5 Rab10 as a novel target to manipulate axonal transport of neurotrophic signalling endosomes**
Oscar Marcelo Lazo, Giampietro Schiavo
- 6 Generation of C9orf72 DPR knock-in mouse models**
Carmelo Milioto
- 7 Proteomic differences in FTL D pathologies**
M.S. Foiani, Toomey C.E.I., Foti S., Hallqvist J., Mills K., Rohrer J.D., Zetterberg H., Lashley T
- 8 Proteomic differences across neurodegenerative diseases**
C.E. Toomey, S. Foti, W. Heywood, K. Mills, S. Gandhi, H. Zetterberg, T. Lashley
- 9 Identifying molecular, structural, and genetic underpinnings of selective vulnerability and pathological heterogeneity in primary and secondary tauopathies**
Sumi Bez
- 10 Transcriptomic signatures of cell-types that show differential vulnerability to tauopathy**
Emir Turkes

UK DRI at Cambridge

- 11 Progressive formation of α -synuclein aggregates in iPSC-derived neurons from a patient with SNCA triplication and Parkinson's disease**
L. Calo, Y. Zuo, H. Henson, T. Fuchsberger, S. De, T. Kunath, O. Paulsen, D. Klenerman, M.G. Spillantini
- 12 The perk kinase insert loop is a novel target for selective modulation of perk signalling without systemic toxicity**
Daniel Hughes
- 13 Endoplasmic reticulum shaping and neuropathology**
Tasuku Konno
- 14 Single cell transcriptomic profiling of human a53t-pd ipsc derived dopamine neurons**
Hugo Fernandes Riberio, Nikolaos Patikas, Stefanie Foskolou, Andrew Bassett, Emmanouil Metzakopian
- 15 Seeded aggregation of tau in mouse organotypic hippocampal slice cultures**
Lauren Miller
- 16 Imaging the trans-cellular propagation of tau at a single aggregate resolution**
Eleni Dimou, William McEwan, David Klenerman
- 17 Felodipine induces autophagy in mouse brains with pharmacokinetics amenable to repurposing**
Farah H Siddiqi, David C. Rubinsztein
- 18 Exploring the roles of USP30 in Parkinson disease**
Yu Sun, Nirav Patel, Paul Thompson, Torren Finkle, Simon David, Gabriel Balmus
- 19 Regulatory pathway of RMB3 induced neuroprotection**
Diego Peretti



UK DRI Care Research & Technology at Imperial

- 20 Brain atrophy in Alzheimer's disease and after TBI: a longitudinal cross-disease comparative study**
Neil S.N. Graham, James H. Cole, Jonathan Schott, David J. Sharp
- 21 CRISPR-Cas diagnostics for dementia**
Michael A. Crone, Loren P. Cameron, Kirsten Jensen, Paul S. Freemont
- 22 Machine learning for risk analysis of Urinary Tract Infection in people with Dementia**
Shirin Enshaeifar, Payam Barnaghi
- 23 Embedding Human-Centred Design in Dementia Technology Research**
Matthew Harrison, Pip Batey, Alice Blencowe, Sarah Daniels, Lenny Naar, Professor David Sharp
- 24 Social robotic support for dementia patients and carers in healthy environs**
Dr Maitreyee Wairagkar, Maria Lima, Ravi Vaidyanatahn

UK DRI at Kings

- 25 Pathological TDP-43-targeting antibody for FTD/ALS**
Alina Fernandez
- 26 Soluble and liquid-liquid phase separated FUS have distinct interaction partners with implications for FUS function and toxicity**
Anny Devoy
- 27 Single molecule nucleocytoplasmic transport dynamics in intact live cells**
Seoungun Lee
- 28 Weakening of M1 muscarinic acetylcholine receptor underlies an early stage of Alzheimer's disease pathophysiology**
Saviana Barbati
- 29 Pathophysiological cytosolic FUS inclusions result in activity dependent synaptic dysfunction in the hippocampus**
Scott Mitchell
- 30 Phase separation of nucleoporins in C9orf72-mediated ALS and FTD**
Dan Solomon

Day 2

- 31 Investigating novel ANXA11 mutations in ALS patient derived motor neurons**
Erin Hedges
- 32 Effects of commonly prescribed anti-psychotics on amyloid clearance through microglial phagocytosis**
Mrityunjay Mondal, Shiden Solomon, Ivo Carre
- 33 The effect of glycation on Abeta aggregation**
Giulia Milordini

UK DRI at Cardiff

- 34 Synaptoneurosome are susceptible to complement mediated lytic attack**
Dr Sarah Carpanini
- 35 Modelling neuroinflammation with iPSC-derived microglia and single cell transcriptomics**
Dr Jimena Monzon Sandoval
- 36 Whole-exome sequencing identifies novel modifiers of Huntington's disease (HD)**
Branduff McAllister
- 37 Retinal ganglion cell morphology in complement deficient mouse models of AD**
Ryan Bevan
- 38 Investigating genetic modifiers of Huntington's disease using Drosophila melanogaster**
Freja Sadler
- 39 Contracting Trinucleotide Repeats using the CRISPR-Cas9 nickase**
Dr Meghan Larin
- 40 Deconvoluting the dementia phenotype using functional computational approaches**
Dr Dobril Ivanov
- 41 A combined analysis of RNAseq data for Alzheimer's Disease subphenotypes in humans**
Karen Crawford
- 42 Understanding the role of FTD/ALS gene TBK1 in cellular response to stress**
Andrew Lloyd



Poster Blitz

Numbers & Titles

UK DRI at Imperial

- 43 Single nucleus RNA sequencing of glia in Alzheimer's disease post-mortem tissue**
Amy Smith
- 44 How sleep-wake state determines diffusion in the brain**
David Miao
- 45 Loss of network-wide homeostatic control with ageing**
Carola Radulescu, Nazanin Doostdar
- 46 Viral targeting of microglia of the circadian master pacemaker**
Renaud Bussiere
- 47 Non-invasive deep brain stimulation of human hippocampus via temporal interference of electric fields**
Kety Alania
- 48 Boosting human cognitive processing by phase-locking information to endogenous brain rhythm**
Matteo Vinao-Carl
- 49 Untargeted metabolomics to study gene mechanistics of Alzheimer's and Parkinson's diseases**
Rui Climaco Pinto, Ibrahim Karaman
- 50 Uncovering the role of ceramides in Dementia through metabolomics**
Brenan Durainayagam
- 51 Gut microbiota-derived tryptophan metabolites and cognitive function: findings from the CARDIA study**
Adesola Bello

UK DRI at Edinburgh

- 52 Nanoscale changes to dysfunctional endothelial cells early in small vessel disease reveal routes to vascular dementia**
Jon Moss
- 53 Understanding the contribution of TREM2 in an experimental model of chronic cerebral hypoperfusion**
Stefan Szymkowiak
- 54 Targeting the role of innate immunity in cerebral small vessel disease**
Sarah McGlasson, David Hunt
- 55 Modelling the neuro-gliovascular system to define neuroinflammatory cascades**
Paul Baxter
- 56 The striatum, the hippocampus, and short-term memory binding: Volumetric analysis of the subcortical grey matter's role in mild cognitive impairment**
Stewart Wiseman
- 57 Impairments in metabolism and axonal homeostasis in C9orf72 motor neurons**
Arpan Mehta
- 58 Astrocytes, amyloidopathy and array tomography**
Monique Hooley
- 59 The lifespan synaptome architecture for the mouse brain**
Ricky (Zhen) Qiu
- 60 Csf1r-dependency of cerebroventricular and choroid plexus macrophages**
David Munro



We all have a story...

We can help tell yours...

Everyday you're carrying out the most ground breaking research in dementia and that deserves to be shouted about.

Let us know about your latest findings & publications and we'll help bring them to life, ensuring that they reach the ears of the wider research community and beyond.



Bedside to bench...

As researchers it is easy to become detached from the people we are trying to help.

That's why we recently set up a 'Lived Experience Group', so your science can benefit from the expertise of people affected by dementia. Keep an eye out for upcoming meeting announcements.

An expert opinion...

It is more important than ever that scientists provide reasoned argument and challenge the headlines. Effective communication of your research is also vital to gaining public support for dementia, and ultimately more funding.

We can help support your media interactions with training opportunities and 1 to 1 advice.



Stay in touch with the UK DRI communications team and don't forget to explore our branded templates - available from your centre manager

Lucy Wilson, Senior Communications Officer, UK DRI HQ: lucywilson@ucl.ac.uk

Press | Social media | Branding | Website | Digital content | Newsletter | Public engagement events | Patient involvement | Public affairs



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