Genomics of Brain Disorders

Wellcome Genome Campus Conference Centre,
Hinxton, Cambridge

23-25 April 2018

Lectures to be held in the Francis Crick Auditorium
Breakfast, Lunch and dinner to be held in the Hall Restaurant
Poster sessions to be held in the Conference Centre

Spoken presentations - If you are an invited speaker, or your abstract has been selected for a spoken presentation, please give an electronic version of your talk to the AV technician.

Poster presentations – If your abstract has been selected for a poster, please display this in the Conference Centre on arrival.

Conference programme

Monday, 23 April 2018

12:30-14:00 Registration with Lunch

14:00-14:10 Welcome and Introductions
Mike Owen, Cardiff University, UK

14:10-15:00 Keynote Lecture:
‘What’s the future of treating brain disorders?’
Ruth McKernan
Innovate UK, Swindon, UK

15:00-16:00 Session 1: Genetic Architecture
Chair: Mike Owen, Cardiff University, UK

15:00 Embracing polygenicity
Naomi Wray
The University of Queensland, Australia

15:30 Deciphering developmental disorders
Kaitlin Samocha
Wellcome Sanger Institute, UK

16:00-16:30 Afternoon Tea
16:30-17:30  
**Session 1 continued:**

16:30  
Novel genetic findings and their biological implications for brain-related traits  
*Danielle Posthuma*  
*VU University Amsterdam, The Netherlands*

17:00  
Common genetic variation contributes to risk of rare developmental disorders  
*Mari Niemi*  
*Wellcome Sanger Institute, UK*

17:15  
Exome sequencing of Huntington’s disease patients identifies mismatch repair machinery and repeat structure as modifiers of disease onset  
*Branduff McAllister*  
*Cardiff University, UK*

17:30-18:00  
**Lightning talks**  
*Chair: Alison Goate, Icahn School of Medicine, USA*

18:00-19:30  
**Poster Session I (odd numbers) with Drinks Reception**

19:30  
Dinner

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**Tuesday, 24 April 2018**

09:00-10:45  
**Session 2: Connecting genetics to biology**  
*Chair: John Hardy, University College London, UK*

09:00  
The cellular phase of Alzheimer’s disease  
*Bart De Strooper*  
*University College London, UK*

09:30  
A genetic perspective on Huntington's disease pathogenesis  
*Lesley Jones*  
*Cardiff University, UK*

10:00  
Genetic identification of brain cell types underlying schizophrenia  
*Nathan Skene*  
*Karolinska Institute, Sweden*

10:15  
Shared and distinct associations underlying schizophrenia and bipolar disorder  
*Laura Huckins*  
*Icahn School of Medicine, USA*
10:30  Analysis of DNA methylation identifies new genomic regions associated with risk of Parkinson’s disease and PD-related environmental factors
Costanza Ludovica Vallerga
The University of Queensland, Australia

10:45-11:15  Morning Coffee

11:15-13:00  Session 3: Systems biology
Chair: Kristen Brennand, Icahn School of Medicine at Mount Sinai, USA

11:15  A gene network view of epilepsy and drug discovery
Mike Johnson
Imperial College London, UK

11:45  Neurodegeneration: beyond the brain
Sarah Gagliano,
University of Michigan, USA

12:15  Elevated polygenic burden for autism is associated with differential DNA methylation at birth
Eilis Hannon
University of Exeter, UK

12:30  Evolutionary conservation of human brain co-expression networks
William Pembroke
University of California Los Angeles, USA

12:45  Genes regulated by SATB2 during neurodevelopment contribute to schizophrenia and educational attainment
Derek Morris
NUIG, Ireland

13:00-14:30  Lunch

14:30-16:00  Session 4: Population studies
Chair: Paul O’Reilly, King’s College London, UK

14:30  New research questions addressed through genome studies in a biobank
Nancy Cox
Vanderbilt University, USA

15:00  Genetic predictors of cognitive decline in the Lothian Birth Cohort 1936
Stuart Ritchie
The University of Edinburgh, UK
15:30 A histone acetylome-wide association study of Alzheimer’s disease: neuropathology-associated regulatory variation in the human entorhinal cortex
Jonathan Mill
University of Exeter, UK

15:45 Novel genetic associations with disrupted circadian rhythmicity in 71,500 individuals from UK Biobank, and polygenic association with mood instability
Amy Ferguson
University of Glasgow, UK

16:00-16:30 Afternoon Tea

16:30-18:00 Session 5: Neuroimmunology
Chair: Alison Goate, Icahn School of Medicine, USA

16:30 More than bystanders: microglia destruct synapses in Alzheimer’s disease
Soyon Hong
Harvard University, USA

17:00 Innate immune activation in Alzheimer disease
Michael Heneka,
University of Bonn, Germany

17:30 Genetic risk for Alzheimer’s disease is concentrated in specific macrophage and microglial transcriptional networks
Matthew Hill
Cardiff University, UK

17:45 Genetic predisposition in anti-LGI1 and anti-NMDA receptor encephalitis
Stefanie Mueller
UKSH Kiel, Germany

18:00-18:30 Lightning talks
Chair: Mike Owen, Cardiff University, UK

18:30-20:00 Poster Session II (even numbers) with drinks reception

20:00 Conference Dinner
09:00-10:15  
**Session 6: Modelling disease**  
*Chair: John Hardy, University College London, UK*

- **09:00**  
  Modelling the impact of common variants on schizophrenia risk using stem cells  
  *Kristen Brennand*  
  *Icahn School of Medicine at Mount Sinai, USA*

- **09:30**  
  Insights into the cell and molecular biology of dementia from human stem cell systems  
  *Rick Livesey*  
  *University of Cambridge, UK*

- **10:00**  
  Exploiting cellular heterogeneity through single cell sequencing reveals HDAC4 as a regulator of cellular phenotypes in Parkinson’s dopamine neurons  
  *Caleb Webber*  
  *University of Oxford, UK*

10:15-10:45  
**Morning Coffee**

10:45-12:15  
**Session 7: Using genomics to drive precision medicine**  
*Chair: John Hardy, University College London, UK*

- **10:45**  
  Genetics of functions and dysfunctions of the brain  
  *Kári Stefánsson*  
  *deCODE genetics, Iceland*

- **11:15**  
  Panel discussion on stratified medicine

- **12:15**  
  Closing remarks:  
  *John Hardy*  
  *University College London, UK*

12:30 - 13:30  
**Lunch & depart**

13:30  
*Coaches depart to Cambridge City Centre and Train Station, Heathrow Airport and Stansted Airport*