

Molecular Neurodegeneration 2-6 December 2019

Wellcome Genome Campus, Hinxton, Cambridge, UK

Lectures and discussion sessions to be held in the Rosalind Franklin Pavilion
Breakfast, Lunch and Dinner will be served in Hinxton Hall's Restaurant (unless stated)
Posters sessions will be held in the Conference Centre Forum

Draft Course Programme

Monday, 2 December 2019

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| 12:00-13:30 | Registration with buffet lunch
Wellcome Genome Campus Conference Centre Forum |
| 13:30-14:00 | Welcome and Course Introductions
<i>Scientific Programme Committee</i> |
| 14:00-15:00 | Group Icebreakers
Small group discussions of delegate areas of interest and course objectives |
| 15:00-15:30 | Afternoon Tea |
| 15:30-17:30 | Session 1: Cerebrovascular regulation in stroke and dementia
<i>Costantino Iadecola, Weill Cornell Medical College, USA</i> <ul style="list-style-type: none">• Fundamentals of cerebrovascular structure and function• Molecular pathology of cerebral ischemic injury• Neurovascular dysfunction and neurodegeneration: vascular effects of neurodegeneration-associated proteins and their contribution to cognitive impairment |
| 17:30-18:00 | Discussion Session |
| 18:00-19:30 | Poster Session 1 with Drinks reception
Participants with surnames A-M will present to small groups in order to introduce themselves and their research interests

Bell every 5 minutes to move to another poster |
| 19:30 prompt | Dinner |
| 19:30-23:00 | Cash Bar |

Tuesday, 3 December 2019

- 07:30-09:00** **Breakfast**
- 09:00-10:30** **Session 2: Clinical aspects of neurodegenerative disease**
Jon Rohrer, University College London, UK
- Clinical assessment of neurological disease patients
 - Autosomal dominant families as models for sporadic neurodegenerative disease
 - Developing biomarkers for diagnosis and disease tracking
- 10:30-11.00** **Morning Coffee**
- 11:00-11:30** **Session 2 continued: Clinical aspects of neurodegenerative disease**
- 11:30-12:00** **Discussion Session**
- 12:00-13:00** **Lunch**
- 13:00-15:00** **Session 3: Parkinson's disease mechanisms**
Tim Greenamyre, University of Pittsburgh, USA
- 20 Years of Modeling Parkinson's disease: A Personal Perspective
 - Gene-Environment Interactions in Parkinson's Pathogenesis
 - Gene Therapy Approaches for Disease Modification in Parkinson's Disease
- 15:00-15:30** **Discussion Session**
- 15:30-16:00** **Afternoon Tea**
- 16:00-18:00** **Session 4: Mechanisms of Spinocerebellar Ataxia and Therapeutics**
Alexandra Durr, Pitie-Salpetriere University Hospital, France
- Genetic and phenotypic heterogeneity of cerebella ataxias
 - Repeat expansions diseases among cerebellar ataxias
 - What did we learn from the presymptomatic phase and natural history of dominantly inherited ataxias in order to prepare therapeutic trials in rare disease
- 18:00-18:30** **Discussion Session**
- 18:30-19:30** **Poster Session 2 with Drinks reception**
Participants with surnames A-M will present to small groups in order to introduce themselves and their research interests
- Bell every 5 minutes to move to another poster**
- 19:00 prompt** **Dinner**
- 19:00** **Cash Bar**

Wednesday, 4 December 2019

07:30-09:00 Breakfast

09:00-10:30

Session 5: Modelling neurodegeneration using iPSC

Selina Wray, University College London, UK

- Generating disease-relevant cell types from iPSC *in vitro*
- Examples of successful use of iPSC to model neurodegeneration
- Advantages and Disadvantages of iPSC models

10:30-11:00

Morning Coffee

11:00-11:30

Session 5 continued: Modelling neurodegeneration using iPSC

11:30-12:00

Discussion Session:

Challenges of iPSC work and considerations when designing iPSC experiments

12:00-13:00

Lunch

13:00-15:00

Session 6: Fragile X and FXTAS

David Nelson, Baylor College of Medicine, USA

- Peculiar genetics and unstable repeats
- Mechanisms of repeat expansion diseases
- Animal models and human therapy

15:00-15:30

Discussion Session

15:30-16:00

Afternoon Tea

16:00-18:00

Session 7: Mechanisms of neurodegeneration in ALS

Rita Sattler, Barrow Neurological Institute, USA

- Mechanisms of disease pathogenesis
- Modeling ALS
- ALS therapeutics and biomarkers

18:00-18:30

Discussion Session

19:00 prompt

Dinner

19:00-23:00

Cash Bar

20:30

Quiz Night

Thursday, 5 December 2019

- 07:30-09:00** **Breakfast**
- 09:00-10:30** **Session 8: Huntington's disease mechanisms and therapeutics**
Gillian Bates, UCL, UK
- Mechanisms of pathogenesis
 - Models of disease
 - HD therapeutics and biomarkers
- 10:30-11:00** **Morning Coffee**
- 11:00-11:30** **Session 8 continued: Huntington's disease mechanisms and therapeutics**
- 11:30-12:00** **Discussion Session**
- 12:00-13:00** **Lunch**
- 13:00-15:00** **Session 9: Alzheimer's disease mechanisms**
Frances Edwards, UCL, UK
- Alzheimer's disease and other Tauopathies
 - Contributions of Amyloid Beta and Tau
 - Gene expression and the immune system
- 15:00-15:30** **Discussion Session**
- 15:30-16:00** **Afternoon Tea**
- 16:00-18:00** **Session 10: Role of autophagy in neurodegeneration**
Helene Plun-Favreau, UCL, UK
- Different forms of autophagy
 - Autophagy in neurodegeneration
 - PD and mitophagy as an example
- 18:00-18:30** **Discussion Session:**
- 18:30 – 19:30** **Pre Dinner Drinks**
Hinxton Hall
- 19:40 prompt** **Course Dinner**
- 19:40-23:00** **Cash Bar**

Friday, 6 December 2019

07:30-09:00 **Breakfast and check-out**

09:00-10:30 **Session 11: RNA Genomics and Bioinformatics in neurodegeneration**

Yi Xing, Children's Hospital of Philadelphia, USA (confirmed)

- RNA-seq for transcriptome analysis
- Post-transcriptional RNA processing and regulation
- Splicing quantitative trait loci (sQTL) analysis to interpret GWAS signals

10:30-11:00 **Discussion Session**

11:00-11:30 **Morning Coffee**

11:30-13:30 **Session 12: Genome wide association studies**

Nick Wood, UCL, UK

- General principles and impact of GWAS data
- Insights of genetics in a complex neurodegenerative disease – using PD as an exemplar
- Novel developments on the 'post-GWAS' era

13:30-14:00 **Discussion Session**

14:00 **Grab bag Lunch**

14:15 prompt **Coaches depart to Cambridge train station and town centre**