

Meeting the challenges of modelling neurodegenerative disease in mice

26 – 27 June 2017

Organised by Professor Elizabeth Fisher, Professor Giampietro Schiavo and Dr Pietro Fratta

Monday 26 June 2017			
SESSION 1 Using new technologies to model key questions in neurodegeneration Chair: Giampietro Schiavo		SESSION 2 Understanding and exploiting? – differences in mouse and human Chair: Pietro Fratta	
09.00	Welcome by Royal Society and Elizabeth Fisher		
09.10	Allan Bradley Genomic humanisation and other technologies in mouse	14.00	Linda Greensmith Mouse physiology and neuroanatomy in modelling neurodegenerative disorders
09.30	Discussion	14.20	Discussion
09.40	Elizabeth Simpson Viral models in neurodegeneration	14.30	Maria Grazia Spillantini Understanding neuropathology in neurodegeneration models, aligning human and mouse
10.00	Discussion	14.50	Discussion
10.10	Ophir Shalem Genome-wide CRISPR knockout screening to study protein quality control and neurodegeneration	15.00	Tea
10.30	Discussion	15.40	Marco Tripodi Mapping and manipulating neural circuits in vivo, possible applications in neurodegeneration models
10.40	Coffee	16.00	Discussion
11.20	Takaomi Saido APP-overexpressing mice versus <i>App</i> knock-in mice for the preclinical studies of Alzheimer's disease	16.10	Mark Lythgoe Neuroimaging of mouse models
11.40	Discussion	16.30	Discussion
11.50	Frances Wiseman Working with complex mouse models to understand neurodegenerative disease	16.40	Discussion (Pietro Fratta) Differences in mouse versus humans, are we simply modelling mouse neurodegeneration?
12.10	Discussion		
12.20	Robert Burgess Improving validity of disease models through phenotype-driven approaches and changing genetic background		
12.40	Discussion		
12.50	Discussion (Giampietro Schiavo) Tissue specificity, site of onset, time of onset, gain or loss of function	17.00	CLOSE
13.00	LUNCH		

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SESSION 3
What do we want from disease models?
 Chair: Elizabeth Fisher

SESSION 4
Optimising future research
 Chair: Pietro Fratta

09.15	Dorothee Dormann Molecular mechanisms of neurodegeneration - insights from cellular and in vitro models	13.30	John Collinge The mouse toolbox we need for neurodegeneration - lessons from prion diseases
09.35	Discussion	13.50	Discussion
09.45	Karen Duff Better modelling of human disease progression in mouse models - rationale and insights to be gained	14.00	Eric Karran What biopharma needs, what we do right and what we do wrong
10.05	Discussion	14.20	Discussion
10.15	Gillian Bates Insights into the molecular basis of Huntington's disease	14.30	Tea
10.35	Discussion	15.00	Monica Justice Aiming for validity and reproducibility in mouse models of neurodegenerative disease
10.45	Coffee	15.20	Discussion
11.15	David Bannerman Lost in translation: why do rodent models fail?	15.30	Susan Ackerman Modifier genes of neurodegeneration-a means to mechanism and new biology
11.35	Discussion	15.50	Discussion
11.45	Mark Good Aligning mouse and human behaviours in neurodegeneration	16.00	Bart De Strooper Hallmarks of Alzheimer's disease in stem cell-derived human neurons transplanted into mouse brain
12.05	Discussion	16.20	Discussion
12.15	Discussion (Elizabeth Fisher) Transgenics or knock ins? Mouse paradigms or translating into human studies?	16.30	Discussion (Pietro Fratta/Giampietro Schiavo/Elizabeth Fisher) Differences in mouse versus humans, are we simply modelling mouse neurodegeneration?
12.30	LUNCH	17.00	CLOSE