

Mouse Models: Genetics, Breeding and Experimental Design

Course Programme

Monday 13 June

- 09.00 Registration & coffee
- 10.00 Welcome Introduction and delegate Intro slides
Neil Dear, SAHMRI, Australia
Sara Wells, MRC, Harwell, UK
James Bussell, Wellcome Trust Sanger Institute, UK
- 11.00 Overview of Mouse Genetics
Sara Wells, MRC, Harwell, UK
- 12.00 Gene and strain nomenclature
James Bussell, Wellcome Trust Sanger Institute, UK
- 12.30 Lunch – *Hinxton Hall Restaurant*
- 13.30 Aspects of good colony management
James Bussell, Wellcome Trust Sanger Institute, UK
- 14.15 Inbred, Outbred & Well Bred Mice
Sara Wells, MRC Harwell, UK
- 15.00 Afternoon Tea

Workshop 1

- 15.30 Breeding Strategies for maintaining basic inbred and single gene GA lines
Calculating breeding strategies
Sara Wells, MRC Harwell, UK
James Bussell, Wellcome Trust Sanger Institute, UK
- 17.00 Free time
- 18.00 Keynote lecture: The background and history of coat colour genetics
Ian Jackson, MRC Human Genetics Unit, Edinburgh, UK

Introduction by **Sara Wells**, MRC, Harwell, UK
- 19.00 Dinner – *Hinxton Hall Restaurant*
- 19.00 Cash Bar

uesday 14 June

- 07.30 Breakfast - *Hall Restaurant*
- 09.00 Andy Greenfield – MRC Harwell
Ethics and working with laboratory animals
- 10.00 Break-out discussion groups
- 10.30 Morning Coffee
- 11.00 Elliot Lilley – RSPCA
Experimental design and 3Rs
- 12.30 Lunch – *Hinxton Hall Resturant*
- 13.30 Establishing and maintaining transgenic lines
Neil Dear, SAHMRI, Australia
- 14.15 **Workshop 1**
Breeding strategies for new GA lines (non-CRISPR)
- 15.15 Afternoon tea
- 15.30 Establishing and maintaining CRISPR lines
Lydia Teboul, MRC Harwell, UK
- 16.15 **Workshop 2**
Breeding strategies for new GA lines (CRISPR)
- 17.15 Free time
- 19.00 Dinner - *Hinxton Hall Resturant*
- 19.00 Cash Bar
- 20.00 Nomenclature quiz (with wine)
James Bussell, Wellcome Trust Sanger Institute, UK
Sara Wells, MRC Harwell, UK
Neil Dear, SAHMRI, Australia

Wednesday 15 June

- 07.30 Breakfast – *Hall Restaurant*
- 9.00 Establishing Multi Allele colonies
Neil Dear, SAHMRI, Australia
- 10.00 **Workshop 3:**
Breeding Calculations: Introduction to breeding multi allele mice
Sara Wells, MRC Harwell, UK
Neil Dear, SAHMRI, Australia
James Bussell, Wellcome Trust Sanger Institute, UK
- 10.30 Morning Coffee
- 11.00 Conditional Transgenesis (Cre-Lox P system)
Neil Dear, SAHMRI, Australia
- 11.45 Worked example of a conditional transgenic experiment
- 11.45 **Workshop 4:**
Conditional transgenesis
Sara Wells, MRC Harwell, UK
Neil Dear, SAHMRI, Australia
James Bussell, Wellcome Trust Sanger Institute, UK
- 12.45 Lunch - *Hinxton Hall Restaurant*
- 13.45 Inducible Transgenesis
Neil Dear, SAHMRI, Australia
- 14.30 **Workshop 5:**
Inducible transgenesis
Sara Wells, MRC Harwell, UK
Neil Dear, SAHMRI, Australia
James Bussell, Wellcome Trust Sanger Institute, UK
- 16.00 Afternoon Tea
- 16.30 Genotyping – design and approaches – review of current technologies
Ed Ryder, Wellcome Trust Sanger Institute, UK
- 17.30 Group discussion on previous 3 days and gaps in knowledge
Sara Wells, MRC Harwell, UK
Neil Dear, SAHMRI, Australia
James Bussell, Wellcome Trust Sanger Institute, UK
- 18.00 Free time
- 19.00 Drinks Reception – kindly sponsored by **Tecniplast**
- 20.00 Dinner - *Hinxton Hall Restaurant*
- 20.00 Cash Bar

Thursday 16 June

- 07.30 Breakfast - *Hall Restaurant*
- 09.00 Quality Control Strategies for mouse lines
Speaker TBC
- CRISPR/Cas9 developments and emerging technologies for generating GA colonies
Ben Davies, *Oxford University, UK*
- 10.30 Breeding Calculations 4: Conditionals Advanced
Sara Wells, *MRC Harwell, UK*
Neil Dear, *SAHMRI, Australia*
James Bussell, *Wellcome Trust Sanger Institute, UK*
- 10.30 Rolling Coffee Break
- 12.00 Electronic tools for colony management and electronic mouse resources
Terrence Meehan – *EBI, UK*
James Bussell, *Wellcome Trust Sanger Institute, UK*
Neil Dear, *SAHMRI, Australia*
- 13.00 Lunch - *Hinxton Hall Restaurant*
- Workshop**
- 14.00 Cryopreservation and Archiving
Martin Fray, *MRC, Harwell, UK*
- 15.00 Introduction to Experimental Design
Sara Wells, *MRC Harwell, UK*
Neil Dear, *SAHMRI, Australia*
- 15.45 Experimental design workshop 1 (with a rolling coffee break)
- Randomisation and blinding
 - The Experimental Unit
 - Calculating experimental numbers
 - The 3Is
- Sara Wells**, *MRC Harwell, UK*
Neil Dear, *SAHMRI, Australia*
- 17.00 Free time
- 19.00 Drinks Reception – kindly sponsored by **Tecniplast**
- 20.00 Conference Dinner - *Hinxton Hall Restaurant*
- 20.00 Cash Bar

Friday 17 June

07.30 Breakfast - *Hall Restaurant*

09.00 Experimental design workshop 2

- Experimental controls
- Statistical Analysis
- Standardisation and Variability – Effects of the environment, time and health status on experimental results

Sara Wells, MRC Harwell, UK

Neil Dear, SAHMRI, Australia

James Bussell, Wellcome Trust Sanger Institute, UK

11.00 Coffee Break

11.30 Keynote lecture:

The ethics of working on live animals

Sir Patrick Bateson, University of Cambridge, UK

13.00 Lunch - *Hinxton Hall Restaurant*

Workshop 7

14.00 Experimental design workshop 3

- Ethics and the 3Rs
- Pilot Experiments

Sara Wells, MRC Harwell, UK

Neil Dear, SAHMRI, Australia

16.00 Wrap up and closing remarks

Sara Wells, MRC Harwell, UK

Neil Dear, SAHMRI, Australia

James Bussell, Wellcome Trust Sanger Institute, UK

16.30 End of course