

**The Biology of Regenerative Medicine
25-27 April 2017**

**Rosalind Franklin Pavilion
Wellcome Genome Campus,
Hinxton, Cambridge, UK**

Conference Programme

Tuesday, 25 April

- 12:30-13:50 **Registration with lunch**
- 13:50-14:00 **Welcome and Introductions**
Robin Franklin, University of Cambridge, UK
- 14:00-15:00 **Keynote Lecture**
Genome engineering human iPS cells to model and treat disease
Bruce Conklin
Gladstone Institute, USA
- 15:00-16:00 **Session 1: Lessons from Phylogeny**
Chair: Robin Franklin, University of Cambridge, UK
- 15:00 The cellular and molecular basis for planarian regeneration
Peter Reddien
Whitehead Institute, USA
- 15:30 Dissecting mechanotransduction in real time: how do cells
sense and respond to changes in their physical environment?
Tony De Tomaso
UC Santa Barbara, USA
- 16:00-16:30 **Afternoon Tea**
- 16:30-17:45 **Session 2: Developments in Regenerative Medicine**
Chair: Amy Wagers, Harvard University, USA
- 16:30 Development of perfusion process for pluripotent cells in
electrospun scaffold-based mini-bioreactor suitable for cell
based therapy
Alex Sim
Amsbio, UK
- 16:45 Dissecting the divergent roles of macrophages in axolotl skin
regeneration and mammalian scarification
A Katherine Rodgers
University of Florida, USA
- 17:00 The rate of proliferation, apoptosis and angiogenesis play a
key role in determining whether the wound heals by a scar free
mechanism or through scarred one.

Isha Ranadive
The Maharaja Sayajirao University of Baroda, India

17:15 In vitro production of osteoblasts from equine iPS cells
Debbie Guest
Animal Health Trust, UK

17:30 The polo-like kinase 1 plays a critical role in the first mitotic
division of murine somatic cell nuclear transfer embryo
Jeonghyeon Moon
Seoul National University, South Korea

17:45-18.15 Lightning talks for odd number posters

18:15-19:15 **Poster Session 1 (odd numbers) with drinks reception**

19:15 Dinner

Wednesday, 26 April

09:00-10:30

Session 3: Inter-tissue communications in regenerative medicine

Chair: Ludovic Vallier, Wellcome Trust Sanger Institute, UK

09:00 Nerve-derived cells and mammalian tissue repair and regeneration

Freda Miller

University of Toronto, USA

09.30 Epithelial-mesenchymal communication during airway branching

Celeste Nelson

Princeton University, USA

10.00 Adult peripheral nerves give rise to neural crest-derived mesenchymal precursors that contribute to mammalian tissue repair and regeneration

Matthew Carr

University of Toronto, Canada

10.15 The planar cell polarity pathway is important for adult lung homeostasis and repair

Charlotte Dean

Imperial College London, UK

10:30-11:00

Morning Coffee

11:00-12:30

Session 4: Programming and re-programming

Chair: Amy Wagers, Harvard University, USA

11:00 Cell based therapies for liver diseases

Ludovic Vallier

Wellcome Trust Sanger Institute, UK

11:30 Talk title TBC

Kristin Baldwin

Scripps Research Institute, USA

12:00 The role of matrix stiffness in modulating cardiac specification of human pluripotent stem cells

Vincent Leonardo

Imperial College London

12:15 Induction of human alveolar regeneration: exploring the effects of retinoic acid

Matthew Hind

Imperial College London, UK

12:30-13:30

Lunch

13.30-15:00

Session 5: Gene editing and engineering

Chair: Bruce Conklin, Harvard, USA

13:30 Restoring functional potential to aged HSCs

Isabel Beerman

National Institute of Health, USA

14:00 Cell- and gene-based strategies to enhance the regenerative functions of muscle stem cells

Amy Wagers

Harvard University, USA

14:30 Disease modeling hypertrophic cardiomyopathy using genome-edited human pluripotent stem cell-derived cardiomyocytes

Diogo Mosqueira

University of Nottingham, UK

14:45 Modelling bestrophinopathies using transgenic epithelial cell lines and using viral vectors to investigate the replacement of Best1 in patients with premature stop mutations resulting in ARB

William Letton

University College London, UK

15:00-15:30

Afternoon Tea

15:30-17:45

Session 6: Engineering solutions for regenerative medicine

Chair: Tony De Tomaso, UC Santa Barbara, USA

16:00 Engineering and exploring the cell-material interface for regenerative medicine

Molly Stevens

Imperial College London, UK

16:30 Engineering human tissues for the clinic

Alicia El Haj

Keele University, UK

17:00 Super-resolution microscopy of Integrin $\alpha 5\beta 1$ clustering: implications for mesenchymal stem cell immunomodulation

Stephanie Maynard

Imperial College London, UK

17:15 A predictive computational framework for direct reprogramming between human cell types

Julian Gough

MRC Laboratory of Molecular Biology, UK

17:30 The use of adipose stem cells and graphene-derived substrates for peripheral nerve regeneration.

Steffan Llewellyn

University of Manchester, UK

17:45-18.15

Lightning talks (a series of 1min talks by poster presenters)

18:15-19:15

Poster Session 2 (even numbers) with drinks reception

19:15

Conference Dinner

Thursday, 27 April

09:00-10:15

Session 7: Ageing and regenerative medicine

Chair: Pete Coffey, UCSB, USA/ University College London, UK

09:00 Ageing and myelin regeneration in the CNS

Robin Franklin

University of Cambridge

09:30 Using induced pluripotent stem cells to investigate novel therapies for sight loss

Amanda Carr

University College London, UK

10:00 ECIS as a platform to discover therapeutics for RPE regeneration in geographic atrophy

Lindsay Bailey Steinitz

UC Santa Barbara, USA

10:15-10:45

Morning Coffee

10:45-13:00

Session 8: Translation

Chair: Amanda Carr, University College London, UK

10:45 Discovery of cardiogenesis-promoting natural products capable of modulating efficiency by inducing initial phase of differentiation

Jin A Lee

Sungkunkwan University, South Korea

11:00 Growth differentiation factor 6 (GDF6) plays an integral role in irreversible epithelial to mesenchymal transition in retinal pigmented epithelial cells.

Amanda Hurley

UC Santa Barbara, USA

11:15 Reprogramming of PBMCs into iPSCs for the in vitro manufacture of bioengineered vascular constructs

Melanie Generali

Institute Regenerative Medicine (IREM), Switzerland

11:30 The importance of cell therapy controls for safe, EU-approved advanced therapy medicinal products

Graziella Pellegrini

University of Modena and Reggio Emilia, Italy

12.00-12.45

Panel discussion

Chair: Pete Coffey, UCSB, USA/ University College London

12.45 Closing remarks:

13.00 -14:00

Lunch

14:00

Coaches depart to Cambridge City Centre and Train Station, Stansted Airport via Heathrow Airport