



Barcelona BioMed Conference

Morphogenetic engineering

November 27-29, 2017

Monday, November 27, 2017

8.30 Registration

9.00 Welcome by Joan J. Guinovart

Session I

9.15 **Morphogenetic engineering**

James Sharpe, EMBL-CRG/ ICREA (Barcelona, Spain)

9.45 **Engineering Proliferative Growth Control**

Arthur D. Lander, University of California, Irvine (Irvine, CA, USA)

10.15 - 11.15 *Coffee break and poster session*

11.15 **The Gene Regulatory Logic of Morphogen Guided Tissue Patterning**

James Briscoe, The Francis Crick Institute (London, UK)

11.45 **Coordination of progenitor specification and growth in the developing spinal cord**

Anna Kicheva, Institute of Science and Technology Austria (Klosterneuburg, Austria)

12.15 **Short talk 1 Evo-devo of epithelial-mesenchymal organs. Modelling morphogenesis and cell mechanics at the interface between epithelium and mesenchyme**

Miquel Marin-Riera, CRG (Barcelona, Spain)

12.30 - 15.00 *Lunch (FresCo, C/ Carme, 16)*

Session II

- 15.00 **Organs, large and small: variation of eye size in *Drosophila* and beyond**
Fernando Casares, CABD-CSIC-Universidad Pablo de Olavide (Sevilla, Spain)
- 15.30 **Morphogens and organ growth**
Marco Milán, IRB Barcelona/ ICREA (Barcelona, Spain)
- 16.00 **Short talk 2 Tissue size control in the mouse blastocyst**
Nestor Saiz, Sloan Kettering Institute (New York, USA)
- 16.15 - 17.00 *Coffee break and poster session*
- 17.00 **Coordination of organ growth during *Drosophila* development**
Pierre Leopold, Institute of Biology Valrose (Nice, France)
- 17.30 **Pattern establishment and scaling in planarians**
Jochen Rink, Max Planck Institute of Molecular Cell Biology and Genetics (Dresden, Germany)

Tuesday, November 28, 2017

Session III

- 9.00 **Clocks and timers in embryonic patterning**
Andrew Oates, EPFL (Lausanne, Switzerland)
- 9.30 **Self-organization in Notch signaling**
Marta Ibañes, Universitat de Barcelona (Barcelona, Spain)
- 10.00 **Re-wiring endogenous bioelectric networks for modular, top-down control of complex anatomy**
Michael Levin, Tufts University (Medford, MA, USA)
- 10:30- 11.15 *Coffee break and poster session*
- 11.15 **Scaling concepts in morphogenesis: Control of cell shape changes and mechanical tension during epithelial contraction**
Jerome Solon, CRG (Barcelona, Spain)
- 11.45 **Some notions from the study of *Drosophila* morphogenesis**
Jordi Casanova, IRB Barcelona/IBMB-CSIC (Barcelona, Spain)
- 12.15 **Short talk 3 Comparative analyses of neuromesodermal progenitor dynamics in vivo**
Benjamin Steventon, University of Cambridge (Cambridge, UK)

12.30 **Short talk 4** Mechanical regulation of collective cell migration: simulation from cell dynamics to layer topology on densely packed tissues
José Manuel García-Aznar, Universidad de Zaragoza (Zaragoza, Spain)

12.45 - 15.30 **Lunch** (FrescCo, C/ Carme, 16)

Session IV

15.00 **Reconstitution of developmental mechanisms with synthetic gene circuits**
Miki Ebisuya, RIKEN (Hyogo, Japan)

15.30 **Back-engineering the constraints and mechanisms guiding developmental homeostasis in adaptive systems**
Veronica Grieneisen, John Innes Centre Norwich Research Park (Norwich, UK)

16.00-16.45 **Coffee break and poster session**

16.45 **Mitosis and epithelial morphogenesis**
Yohanns Bellaiche, Institut Curie (Paris, France)

17.15 **Cellular Mechanisms underlying tissue viscoelasticity and shape change during Drosophila pupal wing morphogenesis**
Suzanne Eaton, Max Planck Institute of Molecular Cell Biology and Genetics (Dresden, Germany)

17.45 **Short talk 5** Apical and basal matrix remodelling control epithelial morphogenesis
Mari Carmen Diaz de la Loza, The Francis Crick Institute (London, UK)

18.00 **Short talk 6** Biophysical constraints drive three-dimensional architecture in epithelial organs
Pedro Javier Gómez-Gálvez, Universidad de Sevilla (Sevilla, Spain)

18.15 **End of session**

20.30 **Speakers dinner**
Restaurant Agüelo013 (Avinyó, 37)

Wednesday, November 29, 2017

Session V

- 9.00 **How to shape an Organ? - Computational Models of Organogenesis**
Dagmar Iber, ETH Zurich (Zurich, Switzerland)
- 9.30 **Spatiotemporal organization of bacterial biofilms**
Jordi Garcia-Ojalvo, Universitat Pompeu Fabra (Barcelona, Spain)
- 10.00 **Neural stem cells dictate shape of the fish eye in a model of continuous organ growth**
Joachim Wittbrodt
- 10.30 - 11:15 *Coffee break and poster session*
- 11.15 **Short talk 7 4D dynamics of mouse embryonic stem cell self-organization**
Luciano Marcon, Max Planck Society (Tuebingen, Germany)
- 11.30 **Short talk 8 3D cell neighbourhood determines primitive endoderm vs epiblast differentiation in mouse embryos**
Silvia Muñoz-Descalzo, Universidad de Las Palmas de Gran Canaria (Las Palmas de Gran Canaria, Islas Canarias, Spain)
- 11.45 **Linking stem cell function and growth patterns of intestinal organoids**
Jörg Galle, Leipzig University (Leipzig, Germany)
- 12.15 **Gastruloids (mammalian embryonic organoids) reveal developmental modularity**
Alfonso Martinez Arias, University of Cambridge (Cambridge, UK)
- 12.45 *Closing remarks*