

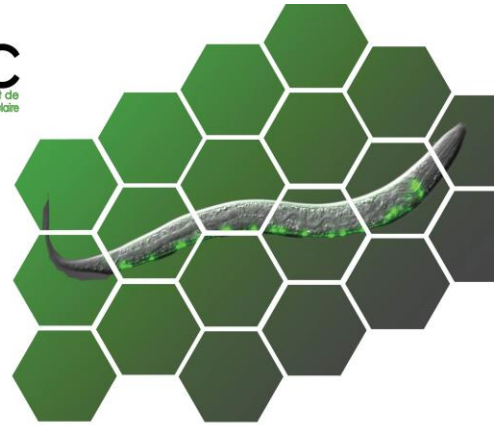
MEETING

**igbmc**  
institut de génétique et de  
 biologie moléculaire et cellulaire

# 6<sup>th</sup> Tri-Regional stem cell & developmental biology meeting

Basel (CH), Freiburg (DE), Strasbourg (FR)

October 18<sup>th</sup> 2019



## PROGRAMME

9:15-9:45 *Registration, tea & coffee  
 Poster set-up*

9:45-10:00 **Welcoming remarks**

### 10:00-12:15 **Session 1**

10:00-11:00 **EMBO Young Investigator lecture by Jérôme Gros**  
**Mechanical control of gastrulation**  
 Institut Pasteur, Paris

Tissue morphogenesis is driven by local cellular deformations, themselves powered by contractile actomyosin networks. Yet, how localized forces are transmitted across tissues to shape them at a mesoscopic scale is still unclear. Analyzing gastrulation in entire avian embryos, we show that it is driven by the graded contraction of a large-scale supracellular actomyosin ring at the margin between the embryonic and extraembryonic territories. The propagation of these forces is enabled by a fluid-like response of the epithelial embryonic disk, which depends on cell division. A simple model of fluid motion entrained by a tensile ring quantitatively captures the vortex-like 'polonaise' movements that accompany the formation of the primitive streak. I will present data suggesting that the distribution of mechanical forces we have brought to light might play a greater role than « just » driving tissue flows in particular in embryonic self-organization.

11:00-11:15 Cardiac forces are essential for partial mesenchymal-to-endothelial transition during zebrafish heart valve formation  
*Renee Wei-Yan Chow, Hajime Fukui, Anne-Laure Duchemin, Julien Vermot*

11:15-11:30 Drosophila epithelial cell and tissue shape in response to external forces  
*Ramya Balaji, Vanessa Weichselberger, Anne-Kathrin Classen*

11:30-11:45 The endocytic receptor Lrp2 functionally interacts with Vangl2 to regulate neural tube closure and forebrain development  
*Izabela Kowalczyk, Annette Hammes, Ann-Kathrin Burkhart, Kerstin Feistel*

11:45- 12:00 Death or Trans-differentiation - How to Remodel a Tissue with Hyper-differentiated Cells?  
*Alexia Tasca, Magdalena Brislinger, Martin Helmstaedter, Peter Walentek*

12:00-12:15 Investigating a causative role for senescence in neuro-developmental birth defects  
*Muriel Rhinn, Jean-Luc Plassat, Bill Keyes*

**Please, bring all your belongings with you when leaving the auditorium as it has to be emptied during lunch time**

12:15-14:30 *Lunch - poster session*

## 14:30-16:15 Session 2

### 14:30-15:30 Keynote lecture by Barbara Treutlein

#### **Reconstructing development and regeneration using single-cell genomics**

ETH Zürich, Department of Biosystems Science and Engineering

In biology, there are many scenarios where cells transit from one cell state or identity to another. During development, stem cells make fate decisions and differentiate into various mature cell types within a complex organ. During regeneration, differentiated cells can acquire a stem cell state and re-differentiate along multiple lineages. Single-cell genomics methods have proven to be powerful tools to illuminate the intermediate states that occur during these cellular transitions. I will discuss our work using single-cell transcriptomics to reconstruct molecular paths during organ development and regeneration. First, I will present our work using single-cell transcriptomics to reconstruct human organoid development and to compare these systems with their primary counterparts. We are now manipulating these systems to study gene function during human development and disease. Second, I will discuss our work exploring regeneration of the axolotl forelimb, where we found that connective tissue cell types in the uninjured adult limb revert to multipotent progenitor states that re-pattern and execute genetic programs observed in the embryonic limb.

**15:30-15:45** Signaling gradients and self-organization during skeletal patterning of tetrapod digits  
*Emmanuelle Grall, Diana Barac, Christian Feregrino, Sabrina Fischer, Dagmar Iber, Patrick Tschopp*

**15:45-16:00** Understanding transcriptional factor dynamics during enteroendocrine cell fate decision process  
*Sara Jimenez, Constance Vagne, Florence BLOT, Adèle De Arcangelis, Nacho Molina, Gérard Gradwohl*

**16:00-16:15** Gene expression atlas of a developing tissue by single cell expression correlation analysis  
*Josephine Bageritz, Philipp Willnow, Erica Valentini, Svenja Leible, Aurelio A. Teleman, Michael Boutros*

**16:15-16:45** *Tea & coffee break + Poster end discussion*

## 16:45-17:30 Session 3

**16:45-17:00** Tbx factor-induced chromatin dynamics control exit from pluripotency and germ layer segregation  
*Jelena Tasic, Gwang-Jin Kim, Mihael Pavlovic, Chiara Schröder, Sophie-Luise Mersiowsky, Margareta Barg, Simone Probst, Sebastian Arnold*

**17:00-17:15** Investigating organ patterning and growth by the Dpp/BMP morphogen gradient using distinct protein binders  
*Shinya Matsuda, Jonas Schaefer, Yusuke Mii, Dimitri Bieli, Masanori Taira, Andreas Pluckthun, Markus Affolter*

**17:15-17:30** The robustness of Grem1 expression in limb buds depends on cooperative interactions among multiple enhancers  
*Laurène Ramos Martins, Jonas Malkmus, Victorio Palacio, Robert Reinhardt, Rushikesh Sheth, Shalu Jhanwar, Rolf Zeller, Aimée Zuniga*