



Mechanical Forces in Development

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- [Human Past](#)
- [Probing Neural Dynamics](#)
- [Cell Types](#)
- [Mechanical Forces in Development](#)
 - [PhD /Postdoc Summit](#)
 - [Speakers and Organisers](#)
 - [Programme](#)
 - [Registration and Abstract Submission](#)
 - [Childcare](#)
 - [Accommodation and Shuttles](#)
 - [Sponsors](#)
 - [Financial Assistance](#)
 - [Contact](#)
- [Microbiology](#)

- [Multiomics](#)
- [Systems Genetics](#)
- [Seeing is Believing](#)
- [Non-Coding Genome](#)
- [Metabolism Meets Epigenetics](#)

Location & dates

EMBL Heidelberg, Germany 3 - 6 Jul 2019

Deadlines

Registration closed Abstract submission closed



Programme

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Day 1 - Wednesday 3 July 2019

Time	Speaker
11:30 – 13:15	Registration and Lunch
13:15 – 13:30	Opening Remarks
13:30 – 14:30	Keynote Lecture Thomas Lecuit - <i>The Developmental Biology Institute of Marseille (IBDM), France</i>

Time	Speaker
14:30 - 18:00	Scientific Session 1 - Tissue Mechanics Chair: Frank Schnorrer
14:30 – 15:00	Dynamics establishment of morphogen gradient in the early <i>Drosophila</i> embryo Naama Barkai - <i>Weizmann Institute of Science, Israel</i>
15:00 – 15:30	Olivier Pourquié - <i>Harvard University, USA</i>
15:30 – 16:30	Coffee Break and Meet the Speakers
16:30 – 16:45	Epithelial viscoelasticity is regulated by mechanosensitive E-Cadherin turnover Venkatesan Iyer - <i>Max Planck Institute of Molecular Cell Biology and Genetics, Germany</i>
16:45 – 17:00	Mechanical coordination directs tissue replacement during metamorphosis in <i>drosophila</i> Enrique Martin-Blanco - <i>IBMB (CSIC), Spain</i>
17:00 – 17:15	Control of tissue morphogenesis by <i>Drosophila</i> Ultrabithorax Maria-Carmen Diaz-de-la-Loza - <i>The Francis Crick Institute, UK</i>
17:15 – 17:30	Role of mechanosensitive ion channel (TMC) in coordinated epithelial cell dynamics in <i>Drosophila</i> embryos Prachi Richa - <i>Universitätsmedizin Göttingen, Germany</i>

Time	Speaker
17:30 – 17:45	Cytoskeletal tension and Bazooka/Par3 tune interface geometry to ensure fusion fidelity and sheet integrity during <i>Drosophila</i> dorsal closure Maithreyi Narasimha - <i>Tata Institute of Fundamental Research, India</i>
17:45 – 18:00	Mechanical symmetry breaking drives fate specification during heart morphogenesis Rashmi Priya - <i>Max Planck Institute for Heart and Lung Research, Germany</i>
18:00 – 19:00	Poster Preview Session
19:00 – 20:30	Dinner in the EMBL Canteen
20:30 – 23:00	Welcome reception in the ATC Rooftop Lounge

Day 2 - Thursday 4 July 2019

Time	Speaker
09:00 - 12:30	Scientific Session 2: Cellular Mechanics Chair: Naama Barkai
09:00 – 09:30	Folding and collective migration Yohanns Bellaïche - <i>Institut Curie, France</i>
09:30 – 10:00	Mechanosensation of tight junctions by ZO-1 phase separation and flow Carl-Philipp Heisenberg - <i>Institute of Science and Technology, Austria</i>

Time	Speaker
10:00 – 10:30	Mechanical stress regulates epithelial tissue integrity during <i>Xenopus</i> embryogenesis Naoto Ueno - <i>National Institute for Basic Biology, Japan</i>
10:30 – 11:00	General tissue properties influence nuclear positioning in neuroepithelia Caren Norden - <i>Max Planck Institute of Molecular Cell Biology and Genetics, Germany</i>
11:00 – 11:30	Coffee Break and Meet the Speakers
11:30 – 11:45	Morphogenesis is stressful – elasticity and mechanics of folding cell sheets Stephanie S.M.H. Höhn - <i>University of Cambridge, UK</i>
11:45 – 12:00	Scaling of PeCoWaCo (periodic cortical waves of contraction) Ozge Ozguc - <i>Institut Curie, France</i>
12:00 – 12:15	Selective Filopodia adhesion ensures robust cell matching in the <i>Drosophila</i> heart Timothy Saunders - <i>Mechanobiology Institute, Singapore</i>
12:15 – 12:30	Mechanosensitive control of cytoskeletal and cell dynamics by the physical tissue environment Verena Ruprecht - <i>Centre for Genomic Regulation - CRG, Spain</i>
12:30 – 14:00	Lunch

Time	Speaker
13:00 – 14:00	<p>ERC: Funding Opportunities for Top Researchers from Anywhere in the World</p> <p>Moderators: Mariam Benjdia - <i>European Research Council</i>, Eduardo Moreno - <i>Champalimaud Centre for the Unknown</i>, Caren Norden - <i>Max Planck Institute of Molecular Cell Biology and Genetics</i></p>
14:00 - 17:30	<p>Scientific Session 3: Mechanosensation</p> <p>Chair: Carl-Philipp Heisenberg</p>
14:00 – 14:30	<p>Mechanical cell competition during development and cancer</p> <p>Eduardo Moreno - <i>Champalimaud, Portugal</i></p>
14:30 – 15:00	<p>Muscle contractions pattern epithelial morphogenesis: mechanosensing and mechanotransduction</p> <p>Michel Labouesse - <i>Institute of Biology Paris-Seine, France</i></p>
15:00 – 15:30	<p>Biomechanics of muscle building - timing of myofibrillogenesis</p> <p>Frank Schnorrer - <i>The Developmental Biology Institute of Marseille (IBDM), France</i></p>
15:30 – 16:00	<p>Mechanosensing by the developing lamina protects against nuclear rupture, DNA damage, and cell cycle arrest</p> <p>Dennis Discher - <i>University of Pennsylvania, USA</i></p>
16:00 – 16:30	<p>Coffee Break and Meet the Speakers</p>
16:30 – 16:45	<p>Stem cell dynamics and signalling in response to force-mediated skin expansion</p> <p>Mariaceleste Aragona - <i>Université Libre de Bruxelles, Belgium</i></p>

Time	Speaker
16:45 – 17:00	Directing growth of cell collectives by photoactivation of YAP Hanna Engelke - <i>Ludwig-Maximilians-Universität München, Germany</i>
17:00 – 17:15	Mechanosensation-dependent Ca²⁺ dynamics during atrioventricular valve development Hajime Fukui - <i>Institute of Genetics and Molecular and Cellular Biology (IGBMC), France</i>
17:15 – 19:00	Poster Session 1 (odd numbers)
19:00 – 20:30	Dinner in the EMBL Canteen
20:30 – 23:00	After dinner drinks in the ATC Rooftop Lounge

Day 3 - Friday 5 July 2019

Time	Speaker
09:00 - 12:30	Scientific Session 4: Modelling Cell Mechanics and Signalling Chair: Michel Labouesse
09:00 – 09:30	Resolving Conflicts: The Genetic Control of Morphogenesis Enrico Coen - <i>John Innes Centre, UK</i>
09:30 – 10:00	Active material properties of dynamic tissue Frank Jülicher - <i>Max Planck Institute for the Physics of Complex Systems, Germany</i>
10:00 – 10:30	Physics of epithelial folds and flows Guillaume Salbreux - <i>The Francis Crick Institute, UK</i>

Time	Speaker
10:30 – 11:00	Dynamic coupling of cell adhesion, RhoA signaling and actomyosin contractility drives zippering and neural tube closure in a simple chordate Edwin Munro - <i>The University of Chicago, USA</i>
11:00 – 11:30	Coffee Break and Meet the Speakers
11:30 – 11:45	Theory of mechanochemical patterning in biphasic biological tissues Adrien Hallou - <i>University of Cambridge, UK</i>
11:45 – 12:00	Minimisation of surface energy drives apical epithelial organisation and gives rise to Lewis' law Marco Kokic - <i>Swiss Federal Institute of Technology in Zurich, Switzerland</i>
12:00 – 12:15	Upscaling active gel models of the actin cortex to epithelial mechanics Adam Ouzeri - <i>Polytechnic University of Catalonia, Spain</i>
12:15 – 12:30	Development and mechanics of malaria-infected red blood cells Ulrich Schwarz - <i>Heidelberg University, Germany</i>
12:30 – 14:00	Lunch
13:00 – 14:00	Meet the Editors Moderators: Ieva Gailite - <i>The EMBO Journal</i> , Christina Karlsson Rosenthal - <i>Communications Biology</i> , Nina Vogt - <i>Nature Methods</i>
14:00 - 17:30	Scientific Session 5: Cytoskeletal Mechanics Chair: Enrico Coen

Time	Speaker
14:00 – 14:30	Mechanosensing at the adherens junction Beth Pruitt - <i>University of California, Santa Barbara, USA</i>
14:30 – 15:00	How neurons bend without breaking Miriam Goodman - <i>Stanford University, USA</i>
15:00 – 15:30	Dynamain bundles actin filaments to promote invasive protrusions in cell-cell fusion Elisabeth Chen - <i>The University of Texas Southwestern Medical Center, USA</i>
15:30 – 16:00	RhoA Mediates Epithelial Cell Shape Changes via Mechanosensitive Endocytosis Margaret Gardel - <i>The University of Chicago, USA</i>
16:00 – 16:30	Coffee Break and Meet the Speakers
16:30 – 16:45	Interkinetic nuclear migration - a stochastic process constrained by tissue architecture Anne Herrmann - <i>University of Cambridge, UK</i>
16:45 – 17:00	Planar Cell Polarity signalling coordinates heart tube remodelling through tissue-scale polarisation of actomyosin activity Daniela Panáková - <i>Max Delbrück Center for Molecular Medicine, Germany</i>
17:00 – 17:15	Tissue-scale mechanical coupling reduces morphogenetic noise to ensure precision during epithelial folding Yu-Chiun Wang - <i>RIKEN, Japan</i>

Time	Speaker
17:15 – 17:30	Tissue self-organized mechanical forces in intestinal organoid crypt morphogenesis Qiutan Yang - <i>Friedrich Miescher Institute for Biomedical Research, Switzerland</i>
17:30 – 19:00	Poster Session 2 (even numbers)
19:00 – 20:30	Conference Dinner in the EMBL Canteen
20:30 – 00:00	Conference Party

Day 4 - Saturday 6 July 2019

Time	Speaker
09:00 - 13:00	Scientific Session 6: Tissue Morphogenesis Chair: Thomas Lecuit
09:00 – 09:30	Transformation, extrusion and the mechanical epithelial environment <i>Alpha Yap - The University of Queensland, Australia</i>
09:30 – 10:00	Can gene expression domains be used to predict 3D morphogenesis in flowers? <i>Henrik Jönsson - University of Cambridge, UK</i>
10:00 – 10:30	Comparative approach to tissue morphogenesis in insects - a new force awakens <i>Pavel Tomancak - Max Planck Institute of Molecular Cell Biology and Genetics, Germany</i>
10:30 – 11:00	Cell shape changes in a folding epithelium: genetically and mechanically determined boundaries <i>Maria Leptin - EMBL Heidelberg, Germany</i>

Time	Speaker
11:00 – 11:30	Coffee Break and Meet the Speakers
11:30 – 11:45	Morphogenesis and mechanotransduction in the closest evolutionary relatives of animals Thibaut Brunet - <i>HHMI/University of California, Berkeley, USA</i>
11:45 – 12:00	Imaging and dynamic analysis of post-implantation mouse embryo development from gastrulation to early organogenesis using light-sheet microscopy Kate McDole - <i>HHMI - Janelia Research Campus, USA</i>
12:00 – 13:00	Keynote Lecture Ewa Paluch - <i>Cambridge University, UK</i>
13:00 – 13:15	Closing Remarks
13:15 – 13:30	Packed Lunch and Departure
13.30	Bus to Heidelberg downtown Bus to Frankfurt Airport