



# New Approaches and Concepts in Microbiology

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## Location & dates

EMBL Heidelberg, Germany 10 - 13 Jul 2019

## Deadlines

Registration closed Abstract submission closed

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Symposia



## Programme

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### Day 1 - Wednesday 10 July 2019

Time	Speaker
<b>12:00-13:45</b>	<b>Registration and Lunch</b>
13:45-14:00	Opening remarks
14:00-15:00	<b>Environment - Sustainability &amp; Science</b> Eric Karsenti and Tobias Erb
15:00-15:30	Coffee break

Time	Speaker
<b>15:30-19:00</b>	<b>Session 1 - Bacterial Systems biology</b> <b>Chairs:</b>  Carol Gross University of California, San Francisco, USA Morten Kjos - Norwegian University of Life Sciences, Norway
15:30-16:00	<b>Silencing genes with dCas9: A story of fine-tuned control, high-throughput screens and surprising toxicity</b> David Bikard - Institut Pasteur, France
16:00-16:15	<b>Development of CRISPR-Cas3 for large-scale genome manipulation</b> Balint Csorgo - University of California, San Francisco, USA
16:15-16:45	<b>Host Micro Biome Interactions in Health and Disease</b> Eran Elinav - Weizmann Institute of Science, Israel
16:45-17:00	<b>Bacterial proteomic landscape revealed by thermal proteome profiling</b> André Mateus - EMBL Heidelberg, Germany
17:00-17:15	<b>High-throughput genome-wide screens to discover host factors important in phage infection and resistance</b> Vivek Mutalik - Lawrence Berkeley National laboratory, USA
17:15-17:45	<b>Coffee break</b>
17:45-18:15	<b>Metabolic coordination through metabolite-protein interactions</b> Uwe Sauer - ETH Zürich, Switzerland

Time	Speaker
18:15- 18:45	<b>Fixing CO<sub>2</sub>-fixation: Drop-by-drop towards an artificial photosynthetic cell</b> Tobias Erb - Max Planck Institute for Terrestrial Microbiology, Germany
18:45- 19:00	<b>Genomic-scale interrogation of positive supercoiling</b> Monica Guo - Massachusetts Institute of Technology, USA
19:00- 19:15	<b>High-resolution search for novel anti-viral defense systems in bacteria</b> Adi Millman - Weizmann Institute of Science, Israel
19:15- 20:30	<b>Dinner</b>
20:30- 23:00	<b>Drinks in the ATC Foyer and Terrace</b>

## Day 2 - Thursday 11 July 2019

Time	Speaker
<b>09:00- 12:30</b>	<b>Session 2 - Cell Biology &amp; Protein machineries</b> <b>Chairs:</b>  KC Huang Stanford University, USA Matthias Wilmanns - EMBL Hamburg, Germany
09:00- 09:30	<b>Molecular Machines that Make Membranes</b> Dan Kahne - Harvard University, USA
09:30- 09:45	<b>MmpL3 is the mycolic acid flippase in mycobacteria</b> Shu-Sin Chng - National University of Singapore, Singapore

Time	Speaker
09:45- 10:15	<b>Structural hybrid methods to probe the Type III Secretion System Injectisome of Pathogenic Bacteria</b> Natalie Strydanka - University of British Columbia, Canada
10:15- 10:30	<b>The supramolecular structure of the bacterial stressosome revealed by cryo-EM unveils its mechanism of activation</b> Allison Williams - Institut Pasteur, France
10:30- 11:00	<b>Coffee break</b>
11:00- 11:30	<b>The elongation machinery of a spherical cocci</b> Marianna Pihno - Instituto de Tecnologia Química e Biológica, Portugal
11:30- 11:45	<b>Pseudomonas aeruginosa orchestrates twitching motility by sequential control of type IV pili movements</b> Alexandre Persat - École Polytechnique Fédérale de Lausanne, Switzerland
11:45- 12:15	<b>The Tat protein export pathway</b> Tracy Palmer - Newcastle University, UK
12:15- 12:30	<b>The role of the protein arginine phosphorylation in the AAA+ unfoldase ClpC mediated protein disaggregation and refolding in B. subtilis cells</b> Kürsad Turgay - Max-Planck-Unit for the Science of Pathogens, Germany
12:30- 15:30	<b>Lunch &amp; Poster Session I (Posters in relations to Session 1, 2 and 3 - please see <a href="#">here</a> for poster list)</b>

Time	Speaker
15:30- 19:00	<b>Session 3 - Regulation, Signaling &amp; Transcriptional networks</b> <b>Chairs:</b>  Michael Laub - Massachusetts Institute of Technology, USA Hilde de Reuse - Institut Pasteur, France
15:30- 16:00	<b>Hedging bets in bacterial signal transduction</b>  Mark Goulian - University of Pennsylvania, USA
16:00- 16:15	<b>The Role of Extracytoplasmic Function (ECF) Sigma Factors across the Bacterial Domain</b>  Horia Todor - University of California, San Francisco, USA
16:15- 16:45	<b>Variations of the same theme: an acid stress circuit in different bacteria</b>  Kirsten Jung - Ludwig-Maximilians-Universität München, Germany
16:45- 17:00	<b>Oxidized Proteins: homeostasis of the DNA repair RecA protein is under redox control</b>  Benjamin Ezraty - CNRS - Aix Marseille Université, France
17:00- 17:30	<b>Coffee Break</b>
17:30- 18:00	<b>Single-cell RNA-seq reports growth condition-specific global transcriptomes of individual bacteria</b>  Jörg Vogel - Helmholtz Institute for RNA-based Infection Research, Germany

Time	Speaker
18:00-18:15	<b>Intricate Webs of Small RNA-RNA Interactions Revealed by RIL-seq</b> Sahar Melamed - National Institutes of Health, USA
18:15-18:45	<b>(p)ppGpp-GTP antagonism is a core metabolic switch that underlies spontaneous and triggered antibiotic persistence</b> Jade Wang - University of Wisconsin-Madison, USA
18:45-19:15	<b>Surveying the landscape of tRNA modifications by combined tRNA Sequencing and Mass Spectrometry</b> Satoshi Kimura - Brigham and Women's Hospital, USA
19:15-20:30	<b>Dinner</b>
20:30-23:00	<b>Drinks in the ATC Foyer and Terrace</b>

### Day 3 - Friday 12 July 2019

Time	Speaker
<b>09:00-12:30</b>	<b>Session 4 - Pathogenesis &amp; Infection</b> <b>Chairs:</b> Pascale Cossart - Institut Pasteur, France Sophie Helaine - Imperial College London, UK
09:00-09:30	<b>A prokaryotic Rab GTPase-like effector of Legionella longbeachae as a unique host adaptation tool</b> Carmen Buchrieser - Institut Pasteur, France

Time	Speaker
09:30-09:45	<b>Imaging the interaction of Neisserial vesicles and innate immune cells</b> Thomas Naderer - Monash University, Australia
09:45-10:00	<b>scSLAM-seq reveals the earliest transcriptome changes in infected single cells</b> Emmanuel Saliba - Helmholtz Institute for RNA-based infection research (HIRI), Germany
10:00-10:15	<b>You do not have to be perfect, you have to be good: The use of structural imperfect mimicry to interact with the host</b> Marc Torrent - Universitat Autònoma de Barcelona, Spain
10:15-10:30	<b>Enteropathogenic Escherichia coli extends membranous nanotube to extract nutrients from infected epithelial cells</b> Ritesh Pal - The Hebrew University of Jerusalem, Israel
10:30-11:00	<b>Coffee break</b>
11:00-11:15	<b>Assembly and structure of the core export apparatus of bacterial type III secretion systems, a unique helical complex of membrane proteins to allow anchoring of a helical needle</b> Samuel Wagner - Tübingen University, Germany
11:15:-11:45	<b>Serine Ubiquitination in host-pathogen interactions</b> Ivan Dikic - University of Frankfurt, Germany
11:45-12:00	<b>Functional screenings reveal different requirements for host microRNAs in Salmonella and Shigella infection</b> Ana Eulalio - University of Coimbra, Portugal



Time	Speaker
12:00-12:15	<b>Cell-to-cell phenotypic heterogeneity in the interactions between macrophages and Mycobacterium tuberculosis</b> Chiara Toniolo - Swiss Federal Institute of Technology in Lausanne (EPFL), Switzerland
12:15-12:30	<b>Large-Scale CRISPRi and Quantitative Imaging Describe the Morphotypic Landscape of Essential Mycobacterial Genes</b> Timothy de Wet - University of Cape Town, South Africa
<b>12:30-15:30</b>	<b>Lunch &amp; Poster Session II (Posters in relations to Session 4 and 5 - please see <a href="#">here</a> for poster list)</b>
<b>15:30-19:00</b>	<b>Session 5 - Antibiotic action-resistance-persistence Chairs:</b>  Frédéric Barras - Institut Pasteur, France Ana Rita Brochado - Wuerzburg University, Germany
15:30-16:00	<b>A dynamical perspective on antibiotic resistance evolution</b>  Sebastian Bonhoeffer - ETH Zürich, Switzerland
16:00-16:15	<b>Phenotypic profiling of stress responses and cell morphology under antibiotic treatment reveals key insights into translational inhibitors</b> Manohary Rajendram - Stanford University, USA
16:15-16:45	<b>Predicting Antibiotic Resistance</b> Roy Kishony- Technion – Israel Institute of Technology, Israel
16:45-17:15	<b>Fighting the spread of antibiotic resistance with bacterial competence inhibitors</b> Jan Willem Veening - University of Lausanne, Switzerland

Time	Speaker
17:15-17:45	<b>Coffee break</b>
17:45-18:15	<b>Antimicrobial peptides and resistance</b>  Csaba Pal - Biological Research Centre of the Hungarian Academy of Sciences, Hungary
18:15-18:30	<b>Ribosome traffic jams cause drug interactions between antibiotics targeting translation</b> Tobias Bollenbach - University of Cologne, Germany
18:30-19:00	<b>The perks of arresting ribosomes at stop codons</b>  Nora Vazquez-Laslop, University of Illinois, USA
19:00-19:15	<b>Timing and regulation of protein aggregation determine persister development</b> Liselot Dewachter - KU Leuven, Belgium
19:15-20:30	<b>Dinner</b>
20:30-24:00	<b>DJ and Party in ATC Foyer</b>

## Day 4 - Saturday 13 July 2019

Time	Speaker
<b>09:00-12:30</b>	<b>Session 6 - Microbial communities/microbiotas/symbiosis</b> <b>Chairs:</b> Nassos Typas - EMBL Heidelberg, Germany Rotem Sorek - Weizmann Institute of Science, Israel
09:00-09:15	<b>Mucosa-lodged antibiotic tolerant Salmonella cells are a reservoir for spread of resistance plasmids</b> Erik Bakkeren - ETH Zürich, Switzerland

Time	Speaker
09:15- 09:30	<b>Determining the target spectrum of antibiotics on human gut commensals</b> Lisa Maier - EMBL Heidelberg, Germany
09:30- 10:00	<b>Microbiota-mediated defense against infection with antibiotic-resistant intestinal pathogens</b> Eric Pamer - Memorial Sloan Kettering Cancer Center, USA
10:00- 10:15	<b>Systematic identification of drug-metabolizing gut microbes and their gene products</b> Michael Zimmermann - Yale School of Medicine, USA
10:15- 10:30	<b>Modulation of intestinal homeostasis and inflammation by <i>Prevotella intestinalis</i> (nov. sp.)</b> Aida Iljazovic - Helmholtz Center for Infection Research, Germany
10:30- 11:00	<b>Coffee break</b>
11:00- 11:30	<b>C-di-GMP signaling in the control of biofilm matrix architecture of <i>E. coli</i></b> Regine Hengge - Humboldt University of Berlin, Germany
11:30- 12:00	<b>Acquired interbacterial defense systems in the human gut microbiome</b> Joseph Mougous - University of Washington, USA
12:00- 12:15	<b>Ocean-on-a-chip: parallel monitoring of community assembly on carbohydrate substrates</b> Johannes Keegstra - ETH Zürich, Switzerland
12:15- 15:00	<b>Lunch &amp; Poster Session III ( Posters in relations to Session 6 and 7 - please see <a href="#">here</a> for poster list)</b>

Time	Speaker
15:00- 17:00	<b>Session 7 - Evolution &amp; Ecology</b> <b>Chairs:</b>  Tyrrell Conway, Oklahoma State University, USA  James Saenz, Technical University Dresden, Germany
15:00- 15:30	<b>Cooperation and competition in bacteria: From model systems to the microbiome</b> Kevin Foster - University of Oxford, UK
15:30- 15:45	<b>A novel family of defense systems providing chemical defense against phages</b> Aude Bernheim - Weizmann Institute of Science, Israel
15:45- 16:15	<b>A colorful solution to breathing through a biofilm</b> Dianne Newman - California Institute of Technology, USA
16:15- 16:30	<b>Ribosome provisioning in <i>Pseudomonas fluorescens</i> activates a bistable switch coupled to fast exit from stationary phase</b>  Gayle Ferguson, Massey University, New Zealand
16:30- 17:00	<b>Poster Awards, Closing Remarks</b>
17:30	<b>Bus downtown and bus to Frankfurt Airport</b>