

6th International Symposium of the SFB 766

THE BACTERIAL CELL ENVELOPE A 12-YEAR-JOURNEY

March 10-13, 2019
Tübingen • Bootshaus am Neckar • Germany

Scientific Programme

Sunday • March 10, 2019

03:00 pm registration opens

Welcome session

Chair: Wolfgang Wohlleben

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| 04:00 pm | Wolfgang Wohlleben | The Bacterial Cell Envelope - A 12-Year-Journey |
| 04:30 pm | Dan Kahne | Molecular machines that make membranes |
| 05:15 pm | Patrice Courvalin | The evolution of glycopeptide resistance |
| 06:00 pm | Get together | in the restaurant of the "Bootshaus" |

Monday • March 11, 2019

08:30 pm **Coffee & brezels**

Lecture session 1 **Bacterial Growth, Differentiation and Interaction**

Chair: Andreas Peschel

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| 09:00 am | Karl Forchhammer | A septum-localized cell communication machinery ensures metabolite exchange in nitrogen-fixing, filamentous cyanobacteria |
| 09:15 am | Martin Pilhofer | Multiscale models of bacterial cell-cell interaction |
| 09:45 am | Iris Maldener | Glycolipid and multidrug exporters of filamentous cyanobacteria involved in stress response and cell differentiation |
| 10:00 am | Marie Elliot | Exploring new growth mechanisms for <i>Streptomyces</i> bacteria |
| 10:30 am | Günther Muth | Role of the <i>Streptomyces</i> Spore wall Synthesizing Complex SSSC in the life cycle of <i>Streptomyces coelicolor</i> A3 |
| 10.45 am | Coffee break | |

Lecture session 2 Glycopolymers and Infection I

Chair: Fritz Götz

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| 11:10 am | Iñigo Lasa Uzcudun | Biofilm matrix: the envelop of the envelop |
| 11:40 am | Christiane Wolz | Temporal and heterogeneous synthesis of capsular polysaccharide in <i>S. aureus</i> |
| 11:55 am | Volker Winstel | Staphylococcal perturbation of host multicellular assemblies |
| 12:25 pm | Andreas Peschel | Methicillin-resistant <i>Staphylococcus aureus</i> alters cell wall glycosylation to evade immunity. |
| 12:40 pm | Lunch break | in the restaurant of the "Bootshaus" |
| 01:40 pm | Photo taking | at the "Bootshaus" |

Lecture session 3 Infection II

Chair: Christiane Wolz

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| 03:00 pm | Jeff Errington | L-form bacteria: from molecular biology to recurrent infection |
| 03:30 pm | Felipe Cava | D-amino acids shape the environmental microbial biodiversity |
| 04:00 pm | Andrea Gust | Interplay of plant lysozymes and LysM immune receptors in PGN perception |
| 04:15 pm | Kristian Riesbeck | Bacterial interactomes and targeting of the host extracellular matrix |
| 04:45 pm | <u>Poster session</u> | with drinks and snacks until 07.00 pm |

Tuesday • March 12, 2019

08:30 pm Coffee & brezels

Lecture session 4 Resistance and Survival Strategies

Chair: Heike Brötz-Oesterhelt

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| 09:00 am | Jonathan Dworkin | <i>E. faecalis</i> containing Tn1549 exhibits multi-drug resistance to cell-wall active antibiotics |
| 09:30 am | Erwin Bohn | Characterization of essential and nonessential genes involved in multi-drug resistance against <i>Pseudomonas aeruginosa</i> |
| 09:45 am | Evi Stegmann | Self-resistance mechanisms of actinomycetes producing antibiotics targeting peptidoglycan biosynthesis |
| 10:00 am | Boris Macek | Quantitative phosphoproteomics in analysis of HipA-mediated persistence |

10.15 am Coffee break

Lecture session 5 Cell Wall and Division

Chair: Christoph Mayer

- 10:35 am Christophe Grangeasse Coordination of capsule assembly with chromosome segregation during the cell division of *Streptococcus pneumoniae*
- 11:05 am Peter Sass Perturbing cell division by antibiotic action
- 11:20 am Tanneke den Blaauwen Periplasmic party
- 11:50 am Gabriella Kelemen Can we re-programme bacterial cell shape?
- 12:20 pm Lunch break** in the restaurant of the “Bootshaus”

Lecture session 6 Cell Wall and Surface

Chair: Karl Forchhammer

- 01:15 pm Andrew Lovering Peptidoglycan-active enzymes from the bacterial predator *Bdellovibrio*
- 01:45 pm Christoph Mayer Bacteria's different ways to recycle their own cell wall
- 02:00 pm Bertolt Gust Inhibition of MraY translocase by uridyl peptide antibiotics
- 02:15 pm Jean-Francois Collet Is the cell surface of *Escherichia coli* decorated with lipoproteins?
- 02:45 pm Friedrich Götz Bacterial excretion of cytoplasmic proteins (ECP): occurrence, mechanism and function

03.00 pm Coffee break

Lecture session 7 Sensing and Cellular Interaction

Chair: Ronald Taussig

- 03:15 pm Kim Orth Black Spot, Black Death, Black Pearl: The tales of bacterial effectors
- 03:45 pm Joachim Schultz In search of a function for the membrane anchors of class IIIa adenylate cyclases
- 04:00 pm Keith M Derbyshire Coordinating conjugation through the barrier of the mycobacterial cell envelope
- 04:30 pm Lina Thoma The unique mode of conjugative DNA transfer in mycelial streptomycetes
- 4:55 pm Guided Tour** through Tübingen (duration approx. 1 h) - please meet at the entrance of the “Bootshaus”
- 7:15 pm “Sektempfang” and Conference Dinner** at the restaurant of the “Bootshaus”

Wednesday • March 13, 2019

08:30 pm **Coffee & brezels**

Lecture session 8 **Protein Biogenesis, Structure and Complexes**

Chair: Boris Maček

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| 09:00 am | Doron Rapaport | Biogenesis of β -barrel proteins in evolutionary context |
| 09:15 am | Stefan Raunser | The power of cryo-EM to elucidate biological mechanisms |
| 09:45 am | Birte Hernandez | The structural diversity of protein fibers at the bacterial cell envelope |
| 10:00 am | Thilo Stehle | Structure-function studies of enzymes that functionalize the bacterial cell wall |

10.15 am **Coffee break**

Lecture session 9 **Secretion Systems**

Chair: Evi Stegmann

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| 10:35 am | Eric Cascales | Assembly of an antibacterial speargun: the type VI secretion system |
| 11:05 am | Sandra Schwarz | Localization determinants of type VI secretion systems targeting bacteria and host cells |
| 11:20 am | Rome Voulhoux | Architecture and function of the type II secretion system in the model bacterium <i>Pseudomonas aeruginosa</i> |
| 11:50 am | Monika Schütz | Biogenesis and function of the autotransporter adhesins YadA and intimin |
| 12:05 pm | Susan Lea | Type 9 secretion system structures reveal a new protein transport mechanism |
| 12:35 pm | Samuel Wagner | Assembly, structure, and function of the export apparatus of bacterial type III secretion systems |
| 12:50 pm | Poster Prizes & Closing Remarks by Wolfgang Wohlleben | |
| 13:10 pm | Lunch break | in the restaurant of the “Bootshaus” |