

BACELL2024-Dubrovnik Programme

01 May 2024:

14:00-16:00 Registration (Valamar Lacroma hotel - Elafiti hall)

Evening Dinner in Dubrovnik (not organized; please make your own arrangements)

02 May 2024:

08:00-09:00 Registration (Valamar Lacroma hotel - Elafiti hall)

09:00-09:10 **Welcome** – Jan Maarten van Dijl (Elafiti hall)

09:10-10:25 Oral session 1: ‘from spore to biofilm’ (Chair: Jolanda Neef)

09:10-09:25 Adriano Henriques (Instituto de Tecnologia Química e Biológica, ITQB NOVA, Cascais, PT)

Assembly of the *Bacillus subtilis* spore coat organelle: from basic science to applications

09:25-09:40 Debora Pospíšilová (Czech Academy of Sciences, Prague, CZ)

Even small subunits can do great things

09:40-09:55 Borja Ferrero Bordera (Institute for Medical Psychology, LMU Munich, DE)

The *B. subtilis* circadian clock controls both growth and cell differentiation

09:55-10:10 Andrea Vetráková (Institute of Molecular Biology, SAS, Bratislava, SK)

Displaying of RBD domain of SARS-CoV-2 on the spore surface of *Bacillus subtilis*

10:10-10:25 Ninon Christol (Institut de Biologie Physico-Chimique, CNRS UMR8261, France)

RNase J2 is involved in *Bacillus subtilis* lifestyle choice

10:25-11:00 Coffee/tea break

11:00-12:15 Oral session 2: ‘from cell to cell’ (Chair: Sandra Maaß) (Elafiti hall)

11:00-11:15 Stefan Klumpp (University of Göttingen, DE)

Modelling the motility-matrix production switch in *Bacillus subtilis*

11:15-11:30 HannahRose Bonham (Department of Microbiology, University of Ljubljana, SI)

Optimization of real-time microscopy techniques for observing and tracking *Bacillus subtilis*-phage interactions

11:30-11:45 Monika Ehling-Schulz (Institute of Microbiology, Center of Pathobiology, Department of Biological Sciences and Pathobiology, Vetmeduni, Vienna, AT)

Impact of horizontal transfer of megaplasmids on pathogen emergence, exemplified by the pCER270 megaplasmid of emetic *Bacillus cereus*

11:45-12:00 Wilfried Meijer (Centro de Biología molecular Severo Ochoa, Madrid, ES)

A special terminator prevents uncontrolled expression by processive antitermination

12:00-12:15 Melih Yüksel (Institute of Biological Physics, University of Cologne, DE)

Genome-wide transformation reveals extensive exchange across closely related *Bacillus* species

12:30-14:00 Lunch (+ separate meeting of BACIP members)

14:00-15:15 Oral session 3: ‘from killer to victim’ (Chair: Biwen Wang) (Elafiti hall)

- 14:00-14:15 Jiří Pospíšil (Institute of Microbiology of the CAS, Prague, CZ)
Sublancin 168 and its potential targets in Gram-positive bacteria
- 14:15-14:30 Lars Lilge (University of Hohenheim, DE)
A two-stage regulatory circuit involving Spo0A and AbrB activated mersacidin biosynthesis in *Bacillus subtilis*
- 14:30-14:45 Sarah Miercke (TU Dresden, DE)
Unravelling the role of transcriptional and post-transcriptional regulation for the production of the antimicrobial eipeptide EPE in *B. subtilis*
- 14:45-15:00 Laura Dobby (Newcastle University, UK)
Unravelling the killing mechanism of the cell wall-targeting antibiotic vancomycin in the Gram-positive model organism *Bacillus subtilis*
- 15:00-15:15 Jurian Wijnheijmer (University of Amsterdam, NL)
Mechanism-oriented antimicrobial screening by transcriptome profiling, machine learning and cytological profiling
- 15:15-15:45 Coffee/tea break**
- 15:45-16:30 Rapid fire poster presentations 1** (13 Oral poster pitches, odd numbers, 3 min for each) (Chair: Ken-ichi Yoshida) (Elafiti hall)
- 16:30-18:00 Poster session 1** (Odd numbers) (Elafiti hall, section 2)
- 19:00-21:30 Dinner** (Valamar Lacroma hotel, main restaurant Mediterraneo)

03 May 2024:

- 09:15-10:30 Oral session 4: 'in, into and across the wall'** (Chair: Melih Yüksel) (Elafiti hall)
- 09:15-09:30 Biwen Wang (University of Amsterdam, NL)
Teichoic acid modifications are required for intercellular competition in *Bacillus*
- 09:30-09:45 Ling Juan Wu (Newcastle University, UK)
Screening for drugs against L-form bacteria
- 09:45-10:00 Jonathan Norris (Newcastle University, UK)
Transertion: co-transcriptional-translational insertion of transmembrane proteins into the membrane
- 10:00-10:15 Aysegül Öktem (University Medical Center Groningen, NL)
Metabolic profile of the genome-reduced *B. subtilis* strain IIG-Bs-27-39, an attractive chassis for recombinant protein production
- 10:15-10:30 Noemi Palombi (University Medical Center Groningen, NL)
Integrating signal peptide optimization and genome reduction to maximize protein secretion efficiency in *Bacillus subtilis*
- 10:30-11:00 Coffee/tea break**
- 11:00-11:45 Oral session 5: 'new horizons'** (Chair: Lars Lilge) (Elafiti hall)
- 11:00-11:15 Sandra Maaß (University of Greifswald, Institute of Microbiology, Greifswald, DE)
Tools to explore the hidden small proteome of *Bacillus subtilis*
- 11:15-11:30 Jan Jamroskovic (institute, country)
Identification of DNA G-quadruplex structures in *Bacillus subtilis* and their possible use in genetic engineering

- 11:30-11:45 Ken-ichi Yoshida (Kobe University, JP)
Bacillus subtilis grown in a “Breathing” vessel without sparger aeration
- 11:45-12:30 Rapid fire poster presentations 2** (13 Oral poster pitches, even numbers, 3 min for each) (Chair: Monika Ehling-Schulz) (Elafiti hall)
- 12:30-13:30 Lunch** (+ separate meeting of BACELL steering group)
- 13:30-15:00 Poster session 2 with coffee/tea** Even numbers (Elafiti hall, section 2)
- 15:00-16:00 Oral session 6: ‘stressed and useful’** (Chair: Jiří Pospíšil) (Elafiti hall)
- 15:00-15:15 Fabián Cornejo (Max Planck Unit for the Science of Pathogens, Berlin, DE)
Role of RNA maturation by RNase Y and the Y-complex in the stress response in *B. subtilis*
- 15:15-15:30 Philippe Jacques (Université de Liège, Gembloux Agro-Bio Tech, BE)
Gene knock-out in surfactin precursor metabolic pathways for surfactin overproduction in *Bacillus subtilis*
- 15:30-15:45 Taichi Chen (University of Amsterdam, NL)
Exploring the potential of *Bacillus subtilis* as cell factory for food ingredients and special chemicals
- 15:45-16:00 Marcin Łukaszewicz (Inventionbio S.A. and Uniwersytet Wrocławski, PL)
Enhancing nutritional value and digestibility of rapeseed meal for animal feed through fermentation with *Bacillus subtilis*
- 16:00-16:30 Plenary discussion – the future of European *Bacillus* research** (Elafiti hall)
- 16:30-16:45** Poster and presentation prizes + concluding remarks
- 18:30 Gala dinner** (Valamar Lacroma hotel - location to be announced)

Posters BACELL2024

Poster session 1

- P01** Silvia Žarnovičanová (Institute of Molecular Biology, SAS, SK)
The positioning of sporulation septum in *Bacillus subtilis*
- P03** Rebecca Pearman (Northumbria University, UK)
Understanding *Bacillus* spore interactions on textiles for innovative cleaning technologies
- P05** Eva Stare (Department of Microbiology, University of Ljubljana, SI)
Genomic insights into kin discrimination in *Bacillus subtilis*: A study of biosynthetic gene clusters diversity
- P07** Roberto Navais (University of Veterinary Medicine Vienna, AT)
Deciphering the mechanism of self-resistance to cereulide toxin: a comparative transcriptomic analysis of *Bacillus cereus* AH187 and its non-toxin producing variants
- P09** Maximilian Hilkmann (Institute of Pharmacy, University of Greifswald, DE)
Characterization of the bacteriocin formosin D produced by *Bacillus licheniformis*
- P11** Lena Friebe (TU Dresden, DE)
Unravelling the Role of the Cannibalism Toxin EPE on *Bacillus subtilis*
- P13** Saran Natarajan (Institute of Microbiology of the CAS, v. v. i., CZ)
Mechanisms of fidaxomicin resistance in bacteria
- P15** Jessica Buttress (Newcastle University, UK)
Daptomycin-induced dual mode of action in *Bacillus subtilis*: in vivo evidence against membrane pore formation
- P17** Šárka Bobková (Institute of Microbiology, Czech Academy of Sciences, CZ)
The role of the phosphotransferase system (PTS) in the regulation of rifampicin resistance
- P19** Tamara Balgová (Institute of Microbiology of the CAS, v. v. i., CZ)
Can rifampicin stimulate transcription?
- P21** Sahar Aljahdali (Newcastle university, UK)
Investigating the role of cell wall modifications in metal ion assimilation and sensitivity in *Bacillus subtilis*
- P23** Biwen Wang (University of Amsterdam, NL)
Improving industrial protein secretion in *Bacillus subtilis* using RNA-seq and Ribo-seq

Poster session 2

- P02** Michael Dolberg Rasmussen / Thomas Kallehauge (Novonesis, Bagsværd, DK)
Signal peptide optimization in an industrial context
- P04** Johanna Wörtl (University Medical Center Groningen, NL)
Integrating signal peptide optimization with genome reduction to maximize protein secretion efficiency in *Bacillus subtilis*
- P06** Thomas Wiegert (University of Applied Sciences Zittau / Görlitz, DE)
Construction of a universal *Bacillus subtilis* secretory expression system
- P08** Mariah Kes (Vrije Universiteit Amsterdam, NL)

Development of a split-luciferase assay to monitor protein secretion in *Bacillus subtilis*

- P10** Abhishek Somani (Ohly GmbH, Hamburg, DE)
Decoding the gold box - Yeast extracts and their role in *Bacillus* fermentations
- P12** Francesca Grilli (Institute of Microbiology, University of Greifswald, DE)
Absolute protein quantification: an innovative method to understand *Bacillus subtilis* stress response
- P14** Veronika Kočárková (Institute of Microbiology of the CAS, Prague, CZ)
Characterization of putative transcription factors in *Bacillus subtilis*
- P16** Klára Mikesková (Institute of Microbiology of the Czech Academy of Sciences, CZ)
Effects of the amino acid sequence of the flexible part of the δ subunit of RNA polymerase on transcription
- P18** Marwa Sayed Ahmed (Newcastle university, UK)
Interaction of *Bacillus subtilis* SigM with the anti-sigma factor complex
- P20** Alberto Agnolin (University of Amsterdam, NL)
Effect of the stringent response on the ribosome profile of *Bacillus subtilis*
- P22** Kristina Driller (Max Planck Unit for the Science of Pathogens, Berlin, DE)
The de novo pyrimidine biosynthesis is a target of (p)ppGpp in *B. subtilis*
- P24** Frederik Völker (RWTH Aachen University, DE)
Novel insights into the effect of citrate supplementation on productivity and viscosity development of *Bacillus subtilis* 168 cultures during poly- γ -glutamic acid synthesis
- P26** Anja Štangar (University of Ljubljana, SI)
The probiotic potential of *Bacillus* spp. strains in preventing American foulbrood in honeybees