

Nucleotide Second Messenger Signaling in Bacteria SPP 1879 International Symposium 2022

Scientific Programme

Sunday (May 22nd)

17:00 - 19:00	Registration / Poster set-up
19:00	Dinner
21:00	Get together (Einstein lounge)

Monday Morning (May 23rd 9:00 – 12:00)

8:30 – 9:00	Set up of posters for poster session I
9:00 – 9:10	Regine Hengge: Welcome and Introduction

Session 1. (p)ppGpp – at the ribosome and beyond

Discussion Leader: Franz Narberhaus (Universität Bochum)

09:10 – 09:40	Jade Wang (University of Wisconsin - Madison): The nucleotide messenger (p)ppGpp is an anti-inducer of the purine synthesis transcription regulator PurR in <i>Bacillus</i>
09:40 – 10:10	Gert Bange (Philipps-Universität Marburg/SYNMIKRO): Stress signaling at the periphery of the translation machinery
10:10 – 10:25	Régis Hallez (University of Namur): The PTS ^{Ntr} drives cell cycle oscillation of the second messenger (p)ppGpp in <i>Caulobacter crescentus</i>
10.30 – 11.00	Coffee Break (Poster hall)
11:00 – 11:30	Rebecca Corrigan (University of Sheffield): (p)ppGpp inhibits 70S ribosome formation by impeding GTPase-ribosome interactions
11:30 – 12:00	Gemma C. Atkinson (Lund University): The dark side of RelA-SpoT Homologue proteins: deadly toxicity and antitoxin hyperpromiscuity
12.00 – 13:30	Lunch

Monday Afternoon (May 23rd 13:30 – 18:15)

13:30 – 15:00	Poster Session I
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Session 2. C-di-GMP – sensory input into DGCs

Discussion Leader: Lotte Søgaard-Andersen (Max Planck Institute - Marburg)

15:00 – 15:30	Emily Weinert (Penn State University): O ₂ -Dependent Control of Diguanylate Cyclase Activity within Globin Coupled Sensors
15:30 – 15:45	Serena Rinaldo (Sapienza University of Rome): Linking L-Arginine and redox sensing in <i>Pseudomonas aeruginosa</i> to control c-di-GMP levels and biofilm formation
15:45 – 16:15	Coffee Break (Poster hall)

Session 3. C-di-GMP-binding effectors and their targets

Discussion Leader: Natalia Tschowri (Leibniz Universität Hannover)

16:15 – 16:45	Petya V. Krasteva (European Institute of Chemistry and Biology, Pessac): Weaving of bacterial cellulose by the Bcs secretion systems
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- 16:45 – 17:15 Mark Buttner (John Innes Centre Norwich):
c-di-GMP arms an anti- σ to control progression of multicellular differentiation in *Streptomyces*
- 17:15 – 17:30 Danny Ward (John Innes Centre, Norwich):
Control of Type III-mediated Virulence in *Pseudomonas syringae* by cyclic-di-GMP
- 17:30 – 17:45 Eike Junkermeier (Humboldt Universität zu Berlin):
A novel locally c-di-GMP-controlled exopolysaccharide synthase required for bacteriophage N4 infection of *E. coli*
- 17:45 – 18:00 Michael Seidel (MPI for Terrestrial Microbiology, Marburg):
Two antagonistically acting, c-di-GMP binding proteins are important for chromosome organization and segregation
- 18:00 – 18:15 Manuel Espinosa-Urgel (Estación Experimental del Zaidín, CSIC, Granada):
The transcriptional regulator ArgR controls the connection between arginine metabolism and c-di-GMP signaling in *Pseudomonas putida*
- 19:00 Dinner / **Set up of posters for poster session II**
- 21:00 Get together (Einstein lounge)

Tuesday morning (May 24th 9:00 – 12:15)

Session 4. c-di-GMP – biofilm formation

- Discussion Leader: Nicole Frankenberg-Dinkel (Universität Kaiserslautern)
- 09:00 – 09:30 Regine Hengge (Humboldt Universität zu Berlin):
Linking bacterial growth, survival and multicellularity of *E. coli* with second messengers as triggers and drivers
- 09:30 – 10:00 George O'Toole (Geisel School of Medicine at Dartmouth):
To Build a *Pseudomonas* Biofilm
- 10:00 – 10:30 Fitnat Yildiz (UC Santa Cruz):
Analysis of a c-di-GMP signaling pathway controlling biofilm formation dynamics in *Vibrio cholerae*
- 10.30 – 11.00 Coffee Break (Poster hall)

Session 5. c-di-GMP – population heterogeneity and development

- Discussion Leader: Susanne Häussler (Helmholtz Centre for Infection Research – Braunschweig)
- 11:00 – 11:30 Rita Tamayo (University of North Carolina, Chapel Hill):
Coordinated modulation of multiple processes through phase variation of a c-di-GMP phosphodiesterase in *Clostridioides difficile*
- 11:30 – 11:45 Vanessa Kreiling (Justus-Liebig-Universität Gießen):
Polar on-switch of the phosphodiesterase PdeB governs heterogeneity of the *Shewanella* life style
- 11:45 – 12:15 Natalia Tschowri (Leibniz Universität Hannover):
Regulation of glycogen metabolism by the second messenger c-di-GMP
- 12:15 – 13:30 Lunch

Tuesday Afternoon (May 24th 13:30 – 17:00)

- 13:30 – 15:00 Poster Session II

Session 6. c-di-GMP degradation

- Discussion Leader: Annegret Wilde (Albert-Ludwigs-Universität Freiburg)
- 15:00 – 15:30 Michael Y. Galperin (NCBI - NIH, Bethesda):
HD-GYP domain, an ugly duckling of c-di-GMP metabolism
- 15:30 – 16:00 Holger Sondermann (Deutsches Elektronen-Synchrotron DESY Hamburg):
At the crossroads of bacterial signaling and RNA degradation
- 16:00 – 16:30 Coffee Break (Poster hall)

Session 7. Nucleotides and phage defense

Discussion Leader: Kürsad Turgay (Max Planck Unit for the Science of Pathogens, Berlin)

- 16:00 – 16:30 Michael Laub (MIT):
Phage defense by a ppGpp synthase homolog that pyrophosphorylates tRNA
- 16:30 – 17:00 Rotem Sorek (Weizmann Institute of Science):
Nucleotide second messengers in antiphage defense systems
- 19:00 Dinner (Habel am Reichstag, Berlin-Mitte)

Wednesday morning (May 25th 9:00 – 12:30)

Session 8. c-AMP-GMP and other nucleotides

Discussion Leader: Anke Becker (Philipps-Universität Marburg/SYNNMIKRO)

- 09:00 – 09:30 Ming C. Hammond (University of Utah):
The role of Hypr GGDEF enzymes in cyclic AMP-GMP signaling
- 09:30 – 09:45 Harald Schwalbe (Goethe-Universität Frankfurt):
The cotranscriptional folding landscape for two cyclic di-nucleotide-sensing riboswitches with highly homologous aptamer domains acting either as ON- or OFF-switches
- 09:45 – 10:15 Lars Dietrich (Columbia University):
Production of bacterial javelins controlled by a cyclic nucleotide-sensing transcription factor
- 10:15 – 10:45 Coffee Break

Session 9. c-di-AMP

Discussion Leader: Fabian Commichau (Universität Hohenheim)

- 10:45 – 11:15 Jörg Stülke (Georg-August-Universität Göttingen):
c-di-AMP mediated regulation of homeostasis in *Bacillus subtilis*
- 11:15 – 11:30 Gregor Witte (Ludwig-Maximilians-Universität München):
BusR – a c-di-AMP binding transcription factor with a built-in molecular ruler
- 11:30 – 11:45 Igor Kviatkovski (Imperial College London):
Identification of genes that impact cellular c-di-AMP levels in *Staphylococcus aureus* using a riboswitch-based biosensor
- 11:45 – 12:00 Michael Haffner (Eberhard-Karls-Universität Tübingen):
Diurnal metabolic control in cyanobacteria requires perception of second messenger signaling molecule c-di-AMP by the carbon control protein SbtB
- 12:00 – 12:15 Sonja-Verena Albers (Albert-Ludwigs-Universität Freiburg):
Cyclic di-AMP as a regulator of the potassium homeostasis in the euryarchaeon *Haloferax volcanii*
- 12:15 – 12:30 Concluding remarks and farewell (R. Hengge)
- 12:30 Departure