

## Nucleotide Second Messenger Signaling in Bacteria

### SPP 1879 Progress Meeting 2021 (online)

Organizers: Regine Hengge & Mihaela Pruteanu (Humboldt-Universität zu Berlin)

**Thursday May 20<sup>th</sup>, 2021**

08:45 – 09:00 Regine Hengge: Welcome and Introduction

#### Session 1: c-di-AMP

Discussion Leader: **Natalia Tschowri** (Leibniz-Universität Hannover)

09:00 – 09:30 **Jörg Stülke** (Georg-August-Universität Göttingen):  
**Life without c-di-AMP: how a *dac* mutant of *Bacillus subtilis* overcomes amino acid toxicity**

09:30 – 09:45 Robert Warneke (AG Stülke, Georg-August-Universität Göttingen):  
A protein in search of a function: The c-di-AMP-binding protein DarA of *Bacillus subtilis*

09:45 – 10:00 Jan-Philip Wieferig (AG Vonck, MPI Strukturbioogie, Frankfurt):  
Structural investigation of the inhibition of the potassium transporter KimA by c-di-AMP

10:00 – 10:15 Frank Braun (AG Albers, Universität Freiburg):  
Cyclic di-AMP as a regulator of the potassium homeostasis in the euryarchaeon *Haloferax volcanii*/Occurrence of (putative) nucleotide second messengers in Eury- and Crenarchaea

10:15 – 10:30 Oliver Mantovani (AG Hagemann, Universität Rostock):  
Role of the second messenger c-di-AMP and the carbon-control protein SbtB on diurnal life cycle in cyanobacteria

10:30 – 11:00 Coffee Break

#### Session 2: c-di-AMP, cAMP, cGAMP

Discussion Leader: **Anke Becker** (Philipps-Universität Marburg)

11:00 – 11:30 **Fabian Commichau** (BTU Cottbus-Senftenberg):  
**Genomic adaptation of *Listeria monocytogenes* to perturbation of c-di-AMP metabolism**

11:30 – 11:45 Inge Schwedt (AG Commichau, BTU Cottbus-Senftenberg):  
Characterization of a c-di-AMP binding protein from *Listeria monocytogenes*

11:45 – 12:00 Sukanya Bhowmick (AG Tschowri, Leibniz-Universität Hannover):  
Inactivation of the LytR\_C domain in a cell-wall associated protein suppresses *Streptomyces*' sensitivity towards ionic osmopressure at low c-di-AMP levels

12:00 – 12:15 Niklas Schäfer (AG Becker, Philipps-Universität Marburg):  
Clr-dependent regulation of secondary root-hair infection during the *Sinorhizobium-Medicago* symbiosis

12:15 – 12:30 Albrecht Eberhard Völklein (AG Schwalbe, Goethe-Universität Frankfurt):  
Deterministic insights into c-GAMP binding transcriptional intermediates of the pilM riboswitch

12:30 – 13:30 Lunch Break

### Session 3: c-di-GMP

Discussion Leader: **Susanne Häussler** (TWINCORE GmbH Hannover / Helmholtz-Centre for Infection Research Braunschweig / Copenhagen University Hospital)

- 13:30 – 14:00 **Regine Hengge** (Humboldt-Universität zu Berlin):  
**Principles of high-specificity local and global c-di-GMP signaling**
- 14:00 – 14:15 Eike Junkermeier (AG Hengge, Humboldt-Universität zu Berlin):  
NfrB: a novel, locally c-di-GMP-controlled glycosyl transferase in *E. coli*
- 14:15 – 14:30 Jelena Erdmann (AG Häussler, TWINCORE GmbH, Hannover):  
Unraveling the c-di-GMP signaling network in the opportunistic pathogen *Pseudomonas aeruginosa*
- 14:30 – 14:45 Vanessa Kreiling (AG Thormann, Universität Gießen):  
Enzymatic activity of a phosphodiesterase in *Shewanella putrefaciens* depends on interaction with a polar landmark protein to create phenotypic heterogeneity
- 14:45 – 15:00 Anna Scherhag (AG Frankenberg-Dinkel, Technische Universität Kaiserslautern):  
Characterization of the phosphodiesterase NbdA from *Pseudomonas aeruginosa* and its interaction partners
- 15:00 – 15:30 Coffee Break

### Session 4: (p)ppGpp and other nucleotides

Discussion Leader: **Christiane Wolz** (Eberhard Karls-Universität Tübingen)

- 15:30 – 16:00 **Gert Bange** (Philipps-Universität Marburg):  
**(p)ppGpp and the protein secretion machinery**
- 16:00 – 16:15 Kristina Driller (AG Turgay, Max Planck Unit for the Science of Pathogens, Berlin):  
Analysis of (p)ppGpp mediated pathways and interaction partners in *B. subtilis* during stress response
- 16:15 – 16:30 Andrea Salzer (AG Wolz, Eberhard Karls-Universität Tübingen):  
Mechanisms of stringent response dependent gene regulation in *Staphylococcus aureus*
- 16:30 – 16:45 Simon Brückner (AG Narberhaus, Ruhr-Universität Bochum):  
The nucleotide ppGpp controls membrane biogenesis and LPS modification in *Escherichia coli*
- 16:45 – 17:00 Karoline Raulf (AG Wilson, Universität Hamburg):  
Structure of the Proline-rich Antimicrobial Peptide Bac5 in Complex with the *Vibrio natriegens* 70S Ribosome
- 17:00 – 17:15 Martin König (AG Bähre/Seifert, Medizinische Hochschule Hannover):  
Detection and Identification of unknown metabolites in biological samples using Ion Mobility Quadrupole Time-of-flight Mass Spectrometry
- 17:15 – 17:30 Closing remarks