

12TH INTERNATIONAL CONGRESS OF PLANT PATHOLOGY

20 - 25 August 2023, Lyon, France



SATELLITE EVENT:

Understanding the ecology and evolution of bacterial wilt disease in the plant microbiomes



Organisers (left to right)

Prof. Ville-Petri Friman (Professor in Microbiology, ville-petri.friman@helsinki.fi.)¹

Dr. Andrea Harper (Lecturer in Plant Biology, andrea.harper@york.ac.uk)²

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Event details: 1 day (**Sunday 20th August 2023**), 50-100 people

Summary: *Ralstonia solanacearum* is one of the most destructive bacterial plant pathogens worldwide, causing bacterial wilt and major crop losses, especially in the solanaceous plant family. While a solid understanding of the molecular interactions between the pathogen and crop plants have been established, these interactions are poorly understood in more complex rhizosphere microbiomes. Moreover, while increasing evidence suggests that plant-pathogen

interactions can evolve rapidly, this is seldom recognised in the context of plant pathogen control. In this session, we will bring together experts from microbiome research, systems biology, plant pathology, experimental evolution and plant pathogen biocontrol to build a multidisciplinary view of the ecology and evolution of *R. solanacearum* in rhizosphere microbiomes. We aim to produce a holistic summary of how ecological and evolutionary information could be harnessed for bacterial wilt biocontrol and to identify key environmental drivers associated with disease outbreaks. We also welcome researchers interested in *R. solanacearum* pangenome to better understand its genetic diversity in space and time.

Please check Padlet for more information:

<https://padlet.com/sarafrancoortega/understanding-the-ecology-and-evolution-of-bacterial-wilt-di-p1338s10vtag8wax>.

AGENDA

- 9 - 9:05 am Welcome

- 9:05 - 10:35 am Session 1. *Ralstonia solanacearum* evolution

9:05 - 9:25 am - Invited speaker: Dr. Alice Guidot (INRAE, CNRS)

Title: Multihost experimental evolution of *Ralstonia solanacearum* unveils genetic and epigenetic bases involved in adaptation to plants

9:25 - 09:45 am - Invited speaker: Dr. Tiffany Lowe-Power (UC Davis)

Title: Understanding *Ralstonia*'s adaptations to their lifecycle through the lens of barcoded genetic screens

09:45 - 10:05 am - Invited speaker: Prof. Ville Friman (University of Helsinki/University of York)

Title: Phage resistance-virulence trade-offs in *Ralstonia solanacearum*

10:05 - 10:20 am - Short talks (7 min each):

- Daria Evseeva, Title: Understanding the ecology and evolution of bacterial wilt disease in the plant microbiomes
- Dr. Florian Gorter, Title: Host range of a new *Ralstonia pseudosolanacearum* (phylo type I) strain detected in Dutch surface waters and bittersweet

10:20 – 10:35 am - Panel discussion and Q&A for speakers: Dr. Alice Guidot, Dr. Tiffany Lowe-Power, Prof. Ville Friman, Daria Evseeva, Dr. Florian Gorter .

- Moderator: Andrea Harper

- 10:35 - 11:10 am Coffee break

- 11:10 - 12:25 pm Session 2. Interactions between *Ralstonia solanacearum* and the plant microbiome

11:10 - 11:30 am - Invited speaker: Prof. Wei Zhong (Nanjing Agricultural University)

Title: Microbial “helpers” of *Ralstonia solanacearum* in plant rhizosphere

11:30 - 11:50 pm - Invited speaker: Dr. Clara Torres-Barcelo (INRAE)

Title: Unveiling phage-bacteria interactions in the light of *Ralstonia solanacearum*'s phylogeny

11:50 - 12:05 pm - Short talks (7 min each):

- Dr. Virginia Ferreira, Title: Comparison of rhizospheric bacterial communities of potato genotypes with diverse defense responses against *Ralstonia solanacearum*
- Dr. Rekha Gopalan Nair, Title: Contact dependent growth inhibition in *Ralstonia pseudosolanacearum*

12:05 – 12:25 pm - Panel discussion and Q&A for speakers: Dr. Wei Zhong, Dr. Clara Torres-Barcelo, Dr. Virginia Ferreira, Dr. Rekha Gopalan Nair

- Moderator: Ville Friman

- 12:25 - 1:45 pm [Lunch break / Networking session \(Lunch boxes provided\)](#)

- 1:45 - 3:00 pm [Session 3. Plant responses and *Ralstonia solanacearum* virulence](#)

1:45 - 2:05 pm - Invited speaker: Prof. Marc Valls (Universitat de Barcelona, Center for Research in Agricultural Genomics (CRAG))

Title: The *Ralstonia solanacearum* virulence and fitness genes

2:05 - 2:25 pm - Invited speaker: Dr. Andrea Harper (University of York)

Title: Reservoir host of *R. solanacearum*

2:25 - 2:40 pm - Short talks (7 min each):

- Weiqi Zhang, Title: Role of PR proteins in tomato defence against *Ralstonia solanacearum*
- Dr. Sara Franco Ortega, Title: Using bacteriophages as evolutionary tools to control bacterial wilt disease: plant transcriptomic response to phage-resistant bacteria

2:40 - 3:00 pm - Panel discussion and Q&A for speakers: Prof. Marc Valls, Dr. Andrea Harper, Weiqi Zhang, Dr. Sara Franco Ortega

- Moderator: Ville Friman

- 3:00 – 3:50 pm [Session 4. The era of big data – New technologies to analyse and understand bacterial wilt disease](#)

3:00 - 3:20 pm - Invited speaker: Dr. Remi Peyraud (iMEAN)

Title: Systems Biology of *Ralstonia solanacearum*, from model strain to species complex

3:20 – 3:40 pm - Invited speaker: Dr. Stephane Genin (Laboratoire des Interactions Plantes Micro-organismes Environnement (LIPME), INRAE, CNRS)

Title: Addressing the nutritional virulence concept in *Ralstonia solanacearum* from -omics data

3:40 - 3:50 pm - Panel discussion and Q&A for speakers: Dr. Remi Peyraud, Dr. Stephane Genin

- Moderator: Sara Franco Ortega

- 3:50 - 4:00 pm [Closing session with highlights and presentation awards for ECRs](#)

- 4:00 - 4:30 pm [Coffee break / Networking session](#)

(ICPP Welcome Reception starts at 6 pm)