

CV – Julien Luneau

Department of Fundamental Microbiology
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Google Scholar: scholar.com/JulienSLuneau

Education

- 2017-2021 **PhD in Plant-Microbe Interactions** – University of Toulouse, France (**defended 02/02/2021**)
2014-2017 **MSc in Agricultural Sciences** – Agrocampus Ouest Rennes & University of Angers, France
Classes include Agronomy, Crop Science, Plant health & diagnostics, Modeling for population dynamics & epidemiology, Molecular plant-microbe interactions, Genomics, Statistics

Research Experience

- Since Feb 2023 **Postdoctoral researcher – University of Lausanne & University of Basel, Switzerland**
with Sara Mitri & Simon van Vliet – Department of Fundamental Microbiology & Swiss National Centre of Competence in Research “Microbiomes”
I am studying plant-pathogen-microbiota and pathogen-environment interactions using computational simulations and single-cell time-lapse microscopy
- Oct 2021 **Postdoctoral researcher – University of Lausanne, Switzerland**
- Dec 2022 with Alma Dal Co – Department of Computational Biology & Swiss National Centre of Competence in Research “Microbiomes”
I measured how phenotypic heterogeneity in *Pseudomonas syringae* promotes bean infection
- Sep 2017 **PhD Student – INRAE | CNRS | University of Toulouse, France**
- Feb 2021 with Alice Boulanger & Emmanuelle Lauber – Laboratoire des Interactions Plante-Microbes-Environnement
I quantified the contribution of *Xanthomonas campestris* genes for early cauliflower leaf infection using RNAseq and RB-TnSeq
- Jan 2017 **MSc Student – INRAE, Angers, France**
- June 2017 with Alexandre Degrave & Romain Warneys – Research Institute on Horticulture and Seeds
I studied how plant physiological responses to commercial plant defense elicitors protect against the *Erwinia amylovora* bacterial pathogen of apple
- July 2016 **MSc Student voluntary internship – INRAE, Bordeaux, France**
- Aug 2016 with Sylvie German-Retana – Department of Fruit Biology and Pathology
I explored how Potyvirus-plasmodesmata protein interactions promote cell-to-cell movement
- Sep 2015 **MSc Student – University of California, Riverside, CA, USA**
- Jan 2016 with Caroline Roper & Brian Ingel – Department of Microbiology and Plant Pathology
I studied how the type II secretion system promotes *Xylella fastidiosa* virulence on grapevine

Service activities & responsibilities

- 2023-2025 Responsible for microscope & single-cell microfluidics training and support in the Mitri lab
2021-2022 Responsible for setting up the wet lab and training Dal Co lab members in microbiology
2019-2021 PhD student representative at the Scientific Board of the Research Federation “Agrobiosciences, Interactions & Biodiversity”
2017-2021 Responsible for the plant growth chambers organization and schedule in the SIX team
2018 President of the INRAE Toulouse campus Young Scientist Association

Manuscript peer-reviewing for journals: *Phytopathology* | *Environmental Microbiology* | *Molecular Plant Pathology* | *Microbiology Spectrum* | *Nature Microbiology* | *Nature Communications* | *ISME Journal*

External reviewer of PhD thesis: University of Málaga (Spain)

Grants & Fellowships

- 2019 **Research grant** – Research Federation “Agrobiosciences, Interactions & Biodiversity”: *Phenotypic heterogeneity of Xanthomonas: cooperation or cheating in the hydathode?* (5 k€)
- 2019 **Travel grant** to IS-MPMI XVIII Congress – French Society of Phytopathology (600 €)
- 2018 **Travel grant** to 6th Xanthomonas Genomics Conference - COST EuroXanth (800 €)
- 2017 **PhD fellowship** - French Ministry of Higher Education and Research (100 k€)

Supervision & Mentoring

- 2024 Matthias Bähler – Lab technician internship (3 months)
- 2022 Alessia Del Panta & Karol Piera – Training of PhD students in wet lab microbiology (1 year)
- 2019 Jonas François – BSc thesis (4 months)
- 2018 Antoine Gaillac – MSc 1st year thesis (2 months)

Collaborations

Switzerland

NCCR Microbiomes | ETH Zurich: Stefano Ugolini, Eleonora Secchi, Wolf-Dietrich Hardt
University of Basel: Médéric Diard
University of Lausanne & University of Bergen (Norway): Snorre Sulheim
University of Lausanne & Harvard University (USA): Francesco Mottes

International

University of Toulouse | INRAE | CNRS (France): Alice Boulanger
University of Málaga (Spain): Nieves López-Pagán & Carmen Beuzón
CNRS, Nice (France): Chiara Vischioni

Previous collaborations

Laurence National Berkeley Laboratory (USA): Adam Deutschbauer
University of California, Berkeley (USA): Jennifer Lewis
INRAE, Toulouse (France): Richard Berthomé, Françoise Jardinaud & Sébastien Carrère

Teaching

- 2024-2025 Teaching Assistant for the “Diversity of Life” practical course
University of Lausanne (Switzerland) – BSc level (10h/year)
- 2023-2025 Lecture on “Plant-associated Microbiomes”
NCCR Microbiomes & University of Lausanne (Switzerland) – MSc level (3h/year)
- 2023 Co-advisor of the iGEM international synthetic biology competition local team
University of Lausanne (Switzerland) – BSc level (40h)
- 2023 Intro Lectures on “Spatially explicit models” & “Image analysis for microbial ecology”
NCCR Microbiomes workshop (1h) – Guggisberg (Switzerland)
- 2020 Instructor for the COST EuroXanth “Tracking bacteria in planta” training school
INRAE Toulouse (France) – Seminar & Practical (10h)
- 2017-2019 Teaching Assistant in ecology and plant pathology
Institut National Polytechnique de Toulouse (France) – BSc & MSc levels (64h/year)

Outreach

- 2025 Sharing fluorescent microscopy images on the [NCCR Microbiomes Art Instagram page](#)
- 2023-2025 Pint of Science festival – City co-coordinator & events organizer (Lausanne, Switzerland)
Bringing scientists to pubs to discuss science with the general public
- 2022 [Video](#) description of a microbial ecology project using microfluidics (Lausanne, Switzerland)
- 2019 Déclics days – Meeting & Discussions with high school students (Toulouse, France)

Professional training

Deep learning techniques in Life Sciences, Image analysis with Machine learning, Microbial community modeling, Advanced graphics with R, Leadership for academia and beyond, Scientific writing, Conceptualization and realization of an outreach video

Conference communications

Oral presentations (10)

- Oct 2024 EMBO workshop Molecular Mechanisms in Evolution & Ecology – EMBL Heidelberg, Germany
- Sep 2024 John Innes Center Early Career Microbiologist Symposium – Norwich, UK
- Aug 2023 Poster pitch, Swiss Society of Microbiology Meeting – Lausanne, Switzerland
- Aug 2022 Flash talk, ISME18 Congress – Lausanne, Switzerland
- Apr 2022 NCCR Microbiomes seminar series – online
- Mar 2020 Online seminar – Vorholt Lab, ETH Zurich, Switzerland
- Jan 2020 14th French Meeting on Plant-Bacteria Interactions – Aussois, France
- Sep 2019 French Network on Xanthomonas – Carcans, France
- May 2019 11th INRAE SPE Department PhD Students Days – Rennes, France
- Oct 2018 French Network on Xanthomonas – Sète, France

Posters (14)

- Mar 2025 NCCR Microbiomes Annual Meeting – Kandersteg, Switzerland
- Aug 2024 19th International Symposium on Microbial Ecology ISME19 – Cape Town, South Africa
- Mar 2024 NCCR Microbiomes Annual Meeting – Kandersteg, Switzerland
- Jan 2024 Microbial Ecology & Evolution (MEEHubs) Conference – online & Lausanne, Switzerland
- Oct 2023 NCCR Microbiomes Annual Review – ETH Zurich, Switzerland
- Aug 2023 Swiss Society of Microbiology Meeting – Lausanne, Switzerland
- Aug 2023 12th International Congress of Plant Pathology – Lyon, France
- Mar 2023 NCCR Microbiomes Annual Meeting – Kandersteg, Switzerland
- Jan 2023 NCCR Microbiomes Industrial partners Meeting – online
- Sep 2022 EMBO Bacterial Networks (BacNet22) – Sant Feliu de Guixols, Spain
- Aug 2022 18th International Symposium on Microbial Ecology ISME18 – Lausanne, Switzerland
- Mar 2022 NCCR Microbiomes Annual Review – online
- July 2019 Molecular Plant-Microbe Interactions International Congress XVIII – Glasgow, Scotland
- July 2018 6th Xanthomonas Genomics Conference – Halle, Germany

Assorted departmental seminars

Publications – Julien Luneau

Peer-reviewed Research articles (4)

- [1]. ***Pseudomonas syringae* subpopulations cooperate by coordinating flagellar and type III secretion spatiotemporal dynamics to facilitate plant infection.**
Nature Microbiology (2025) | <https://doi.org/10.1038/s41564-025-01966-0>
N López-Pagán, JS Rufián, **JS Luneau**, M-A Sánchez-Romero, L Aussel, S van Vliet, J Ruiz-Albert, CR Beuzón
- [2]. **Bacterial host adaptation through sequence and structural variations of a single type III effector gene.**
iScience (2024) | <https://doi.org/10.1016/j.isci.2024.109224>
E Lauber*, M González-Fuente*, M Escouboué, C Vicédo, **JS Luneau**, C Pouzet, A Jauneau, C Gris, Z-M Zhang, C Pichereaux, S Carrère, LD Noël, L Deslandes.
- [3]. **Genome-wide identification of fitness determinants in the *Xanthomonas campestris* bacterial pathogen during early stages of plant infection.**
New Phytologist (2022) | <https://doi.org/10.1111/nph.18313>
JS Luneau, M Baudin, T Quiroz Monnens, S Carrère, O Bouchez, M-F Jardinaud, C Gris, J François, J Ray, B Torralba, M Arlat, JD Lewis, E Lauber, AM Deutschbauer, LD Noël, A Boulanger.
- [4]. ***Xanthomonas* transcriptome inside cauliflower hydathodes reveals bacterial virulence strategies and physiological adaptations at early infection stages.**
Molecular Plant Pathology (2022) | <https://doi.org/10.1111/mpp.13117>
JS Luneau*, A Cerutti*, B Roux, S Carrère, M-F Jardinaud, A Gaillac, C Gris, E Lauber, R Berthomé, M Arlat, A Boulanger, LD Noël.

Peer-reviewed Protocols (1)

- [5]. **A β -glucuronidase (GUS) based bacterial competition assay to assess fine differences in fitness during plant infection.**
Bio-protocol (2022) | <https://doi.org/10.21769/BioProtoc.3776>
JS Luneau, LD Noël, E Lauber, A Boulanger.

Peer-reviewed Reviews (1)

- [6]. **From microbiome composition to functional engineering, one step at a time.**
Microbiology and Molecular Biology Reviews (2023) | <https://doi.org/10.1128/mmbr.00063-23>
SD Burz, S Causevic, A Dal Co, M Dmitrijeva, P Engel, D Garrido-Sanz, G Greub, S Hapfelmeier, W-D Hardt, V Hatzimanikatis, CM Heiman, MKM Herzog, A Hockenberry, C Keel, A Keppler, S-J Lee, **JS Luneau**, L Malfertheiner, S Mitri, B Ngyuen, O Oftadeh, AR Pacheco, F Peaudecerf, G Resch, H-J Ruscheweyh, A Sahin, IR Sanders, E Slack, S Sunagawa, J Tackmann, R Tecon, GS Ugolini, J Vacheron, JR van der Meer, E Vayena, P Vonaesch, JA Vorholt.

* authors contributed equally to the work

References – Julien Luneau

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