

Baptiste GENOT PhD.

Current email : bgenot@edu.k.u-tokyo.ac.jp

Other contact : baptiste.genot@gmail.com

Research interests

Plant and algae biology, photo-symbiosis. Cells responses to biotic and abiotic environmental challenges, in particular stress signaling processes at the cellular and molecular level. Biochemistry, molecular biology and microscopy approaches.

Education

- Ph.D in Cellular Biology, Université Paris-Saclay, France, 2016.
(<https://theses.fr/2016SACLE010>)
 - M.S. Plant Production and Agri-Food Industries (PVIA), University Picardy Jules Verne, Amiens France, 2012.
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Work experience

2024- present: Project researcher

Graduate School of Frontier Sciences, the University of Tokyo, Japan. Maruyama lab.

Areas of research: Evolution of photosynthesis, photosymbiosis, coral reef biology.

2020-2024: Post-doctoral scientist

Bigelow Laboratory for Ocean Sciences, East Boothbay, USA. J. Burns laboratory.

Areas of research: Salamander/algae symbiosis, Algae stress signaling, Ocean sciences.

2016-2018: Post-doctoral scientist

Institut Jacques Monod, Paris, France. I. Jupin laboratory (closed).

Areas of research: phytovirus replication, plant stress signaling.

2012-2016: PhD student

The Institute of Plant Sciences of Paris-Saclay (IPS2), Paris, France. Stress Signaling lab, Dr. Jean Colcombet.

PhD research: Functional characterization of the stress-activated Arabidopsis MAP Kinase MPK3 using gain-of-function mutations.

Scientific and technical skills

Molecular Biology

DNA cloning, bacterial transformation, primer designing, PCR, RT-qPCR, RNAseq, DNA sequencing, fluorescence in situ hybridization.

Biochemistry

Protein extraction, immuno-precipitation, in vitro kinase assays, Phospho-proteomics, protein detection by western-blot, phyto-hormones quantification, micro-plate enzymatic assays.

Plant/algae methods

Application of exogenous treatments, preparation and transformation of mesophyll protoplasts or algae, pathogen assays, cellular localization assays, fluorescence microscopy, flow cytometry, PAM imaging, general physiology (growth, chlorophyll, live staining...)

Genetics

Plant transformation with *Agrobacterium*, screening of mutations, crossing of *Arabidopsis* plants. Algae transformation by electroporation or chemicals, antibiotic selection.

Oceanography

CTD, plankton towing, coring (multi-core, piston core)- 10 days at sea (Gulf of Maine), summer 2022, Earth and Climate Sciences team, University of Maine.

Publications

Protist biology and photosymbiosis

Genot, B., Grogan, M., Yost, M., Iacono, G., Archer, S.D., Burns, J.A., 2024. Functional stress responses in Glaucophyta: Evidence of ethylene and abscisic acid functions in *Cyanophora paradoxa*. *Journal of Eukaryotic Microbiology* n/a, e13041. <https://doi.org/10.1111/jeu.13041>

Genot, B., Burns, J.A., 2022. Transformation of the symbiotic alga *Oophila amblystomatis*: a new tool for animal-algae symbiosis studies. *Symbiosis* 87, 143–151. <https://doi.org/10.1007/s13199-022-00861-0>

Yang, H., **Genot, B.**, Duhamel, S., Kerney, R., Burns, J.A., 2022. Organismal and cellular interactions in vertebrate–alga symbioses. *Biochemical Society Transactions* 50, 609–620. <https://doi.org/10.1042/BST20210153>

Ocean sciences

Burns, J.A., Becker, K.P., Casagrande, D., Daniels, J., Roberts, P., Orenstein, E., Vogt, D.M., Teoh, Z.E., Wood, R., Yin, A.H., **Genot, B.**, Gruber, D.F., Katija, K., Wood, R.J., Phillips, B.T., 2024a. An in situ digital synthesis strategy for the discovery and description of ocean life. *Sci Adv* 10, eadj4960. <https://doi.org/10.1126/sciadv.adj4960>

Burns, J.A., Daniels, J., Becker, K.P., Casagrande, D., Roberts, P., Orenstein, E., Vogt, D.M., Teoh, Z.E., Wood, R., Yin, A.H., **Genot, B.**, Wood, R.J., Katija, K., Phillips, B.T., Gruber, D.F., 2024b. Transcriptome sequencing of seven deep marine invertebrates. *Sci Data* 11, 679. <https://doi.org/10.1038/s41597-024-03533-4>

Plant Biology

Genot, B., Lang, J., Berriri, S., Garmier, M., Gilard, F., Pateyron, S., Hausteraete, K., Van Der Straeten, D., Hirt, H., Colcombet, J., 2017. Constitutively Active Arabidopsis MAP Kinase 3 Triggers Defense Responses Involving Salicylic Acid and SUMM2 Resistance Protein. *Plant Physiology* 174, 1238–1249. <https://doi.org/10.1104/pp.17.00378>

Lang, J., **Genot, B.**, Bigeard, J., Colcombet, J., 2022. MPK3 and MPK6 control salicylic acid signaling by up-regulating NLR receptors during pattern- and effector-triggered immunity. *Journal of Experimental Botany* 73, 2190–2205. <https://doi.org/10.1093/jxb/erab544>

Lang, J., **Genot, B.**, Hirt, H., Colcombet, J., 2017. Constitutive activity of the Arabidopsis MAP Kinase 3 confers resistance to *Pseudomonas syringae* and drives robust immune responses. *Plant Signaling & Behavior* 12, e1356533. <https://doi.org/10.1080/15592324.2017.1356533>

Latrasse, D., Jégu, T., Li, H., de Zelicourt, A., Raynaud, C., Legras, S., Gust, A., Samajova, O., Veluchamy, A., Rayapuram, N., Ramirez-Prado, J.S., Kulikova, O., Colcombet, J., Bigeard, J., **Genot, B.**, Bisseling, T., Benhamed, M., Hirt, H., 2017. MAPK-triggered chromatin reprogramming by histone deacetylase in plant innate immunity. *Genome Biology* 18, 131. <https://doi.org/10.1186/s13059-017-1261-8>

Talks and other communications

- 2nd Asia-Oceania International Congress on Photosynthesis (AOICP), Kobe, Japan - presented by S. Maruyama, September 2024 - Poster “Stress Response Mechanisms and Growth Trade-Offs in Algae: Deciphering Phytohormone Roles in Glaucophyta.”
- PSA-ISOP-ISEP Joint Meeting, Seattle, USA - presented by J. Burns, July 2024 - Oral presentation “Functional stress responses in Glaucophyta: Evidence of ethylene and abscisic acid functions in *Cyanophora paradoxa*”.

- Phycological Society of America (PSA) Annual Meeting, Providence, USA, June 2023 – Oral presentation “Exploring how single cells process information: Hormone activity in a glaucophyte alga.”
 - International Society for Evolutionary Protistology (ISEP23) – virtual meeting, January 2023 – oral presentation “Exploring how single cells process information: Hormone activity in a glaucophyte alga.”
 - 10th Congress of the International Symbiosis Society – Lyon, France, July 2022 – oral presentation and “teaching symbiosis” workshop on salamander/algae symbiosis.
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Teaching

- Lab instructor, Sea change semester (2021 and 2022), Bigelow laboratory & Colby College : preparation of lecture material, demonstration of experiments, and grading lab reports.
 - Mentored 4 REU students at Bigelow laboratory (2021-2022): experimental advice, planning and interpretation of results, poster and talk preparation, and moral support.
 - Mentored 2 post-graduate students (2016-2018) at the Institut Jacques Monod, Paris, France.
 - Mentored an undergraduate student (2015) at the Institute of Plant Sciences of Paris-Saclay (IPS2), Paris, France
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Grants

- Internal Bigelow laboratory “seed 2023” grant (30,000 USD) - Identification of hormone signaling pathway in Dinoflagellates: can we link hormone production to the species lifestyle ?
 - PhD fellowship received by École doctorale Structure et Dynamique des Systèmes Vivants (ED577) - Université Paris-Saclay - National Institute of Research in Agriculture and Environment (INRAE).
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Other skills and occupations

Languages: French, English.

Travels: Backpacking trip around Asia - volunteering experiences in farms in Japan and Cambodia (gap year 2018/2019) **developed my capacity of empathy and my ability to adapt rapidly to new and challenging environments.**

General interests: Literature, cinema, world cuisine, Canoe/kayak and dragon boat.