



## Solene Moulin

Postdoctoral Scholar, Pathology

### Bio

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#### BIO

I am a very curious person who likes to understand how things work and I love to contribute to new discoveries that will help to cope with tomorrow's challenges. After my studies at the Ecole Normale Supérieure Ulm, I got specialized in plant science. I am interested in this research field because plants are critical for environment as well as for food and bio-energy production. In 2016, I joined CEA Cadarache for my PhD which led me to participate in a research program on hydrocarbon synthesis in algae. I really liked this project which was focusing on both reaching a bio-based production of hydrocarbons for fuel production and deciphering of the hydrocarbon synthesis pathway in algae. I have been leading research to assess the occurrence of this pathway in the different types of eukaryotic algae, its evolutionary history and its relevance for algal physiology. I am now going to study another evolutionary history that has led to a symbiosis between a diatom and a N-fixing cyanobacteria, the latest being on its way to become an organelle. Understanding the physiological relationship between the diatom and the cyanobacteria will help understanding nitrogen cycle and could lead to major innovations in farming.

#### STANFORD ADVISORS

- Ellen Yeh, Postdoctoral Faculty Sponsor

### Publications

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#### PUBLICATIONS

- **Genomes of nitrogen-fixing eukaryotes reveal an alternate path for organellogenesis.** *Proceedings of the National Academy of Sciences of the United States of America*  
Frail, S., Steele-Ogus, M., Doenier, J., Moulin, S. L., Braukmann, T., Xu, S., Yeh, E.  
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- **The cell biology and genome of *Stentor pyriformis*, a giant cell that embeds symbiotic algae in a microtubule meshwork.** *Molecular biology of the cell*  
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2025: mbcE24120571
- **Genomes of nitrogen-fixing eukaryotes reveal a non-canonical model of organellogenesis.** *bioRxiv : the preprint server for biology*  
Frail, S., Steele-Ogus, M., Doenier, J., Moulin, S. L., Braukmann, T., Xu, S., Yeh, E.  
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- **The endosymbiont of *Epithemia clementinais* specialized for nitrogen fixation within a photosynthetic eukaryote.** *ISME communications*  
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- **What do photosynthetic organisms need to thrive in all circumstances?** *The Plant cell*  
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- **The endosymbiont of *Epithemia clementina* is specialized for nitrogen fixation within a photosynthetic eukaryote.** *bioRxiv : the preprint server for biology*  
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- **From the archives: Oxidative stress tolerance in *Chlamydomonas* and herbicide resistance in the weedy species *Eleusine indica*.** *The Plant cell*  
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2022
- **Get connected to the fungal network for improved transfer of nitrogen: the role of *ZmAMT3;1* in ammonium transport in maize-arbuscular mycorrhizal symbiosis.** *The Plant cell*  
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- **The big guy keeps the gate: The largest chloroplast-encoded protein, *Orf2971*, serves for translocation and quality control of chloroplast-imported proteins.** *The Plant cell*  
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- **With a little help from my friends: mitochondria maintain redox balance for the endoplasmic reticulum.** *The Plant cell*  
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- **Fatty acid photodecarboxylase is an ancient photoenzyme that forms hydrocarbons in the thylakoids of algae.** *Plant physiology*  
Moulin, S. L., Beyly-Adriano, A. n., Cuiné, S. n., Blangy, S. n., Légeret, B. n., Floriani, M. n., Burlacot, A. n., Sorigué, D. n., Samire, P. P., Li-Beisson, Y. n., Peltier, G. n., Beisson, F. n.  
2021
- **Mechanism and dynamics of fatty acid photodecarboxylase.** *Science (New York, N.Y.)*  
Sorigué, D. n., Hadjidemetriou, K. n., Blangy, S. n., Gotthard, G. n., Bonvalet, A. n., Coquelle, N. n., Samire, P. n., Aleksandrov, A. n., Antonucci, L. n., Benachir, A. n., Boutet, S. n., Byrdin, M. n., Cammarata, et al  
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- **A *Selaginella moellendorffii* Ortholog of KARRIKIN INSENSITIVE2 Functions in Arabidopsis Development but Cannot Mediate Responses to Karrikins or Strigolactones** *PLANT CELL*  
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