

Cécile MOLINIER - PhD in Evolutionary biology

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29 years old

French: native speaking

English (TOEIC: 870)

Spanish: high school level

Driving licence B

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Education

- 2022-present Post-doctoral researcher, Max Planck Institute for Biology, Tübingen (Germany), supervisor: Agnieszka Lipinska- *Sex chromosomes, reproductive isolation and speciation in the brown algae*.
- 2018-22 PhD student, Centre d'Ecologie Fonctionnelle et Evolutive (CEFE), Montpellier, supervisors: Haag Christoph & Lenormand Thomas- *Genomics of clonality: A novel approach using sex in asexuals*.
- 2017 Master degree 2, Ecology, Evolution, Genomics (M2 EEG), Lyon (France)-
- 2016 Master degree 1, Biology Ecology and Evolution (M1 BEE Darwin), Montpellier (France)-
- 2013-15 Bachelor degree, Ecology and Biology of Organisms (L3 EBO), Montpellier (France)-
- 2013 1st year of CPGE in Biology - Joffre High school (France)
- 2012 Scientific Baccalaureate with highest honor- Jean Vilar High school (France)

Research experiences

- 2018 (2,5 mos) Collaboration at the Arizona State University (ASU) in Dr Lynch's group- *Association mapping on a population of Daphnia pulex in which individuals with environmental or genetic sex determination occur*.
- 2017 (3 mos) Fixed-term contract for the M2 internship prolongation at the CEFE, supervisor: Christoph Haag.
- 2017 (5,2 mos) M2 internship at the CEFE of Montpellier, supervisor: Christoph Haag - *Evolution of gene expression during a transition from environmental to genetic sex determination in Daphnia magna*.
- 2017 (3,5 mos) M1 internship at the Institut de Recherche pour le Développement (IRD), Montpellier, supervisor: Valérie Poncet - *Detection of selection signals in wild populations of Coffea canephora in tropical Africa*.
- 2015 (2 mos) Internship at the Centre de Biologie et de Gestion des Populations (CBGP-INRA), Montpellier- supervisor: Réjane Streiff *Implementation and monitoring of survival and development (time, weight) in reciprocal transplantation of Ostrinia nubilalis and Ostrinia scapularis larvae on corn and artemisia*.

International peer-review publications

- Molinier C.*** & Reynes L.*, Chan F., Kucka M., Coelho S., Haas F., Luthringer R., Coudret J., Valero M., Lipinska P.A. **in prep.** *Insight into the processes of introgression and speciation in Ectocarpus sp. using linked-reads sequencing* *equal contribution
- Molinier, C.**, Haag, C. R., & Lenormand, T. **in prep.** *No asexual contagion: non identical transmission of asexual phenotype*.
- Molinier, C.**, Haag, C. R., & Lenormand, T. (2023) *No recombination suppression in asexually produced males of Daphnia pulex*, Evolution
- Molinier, C.***, Boyer, L.*, Villamil, N.*. *Digest: Evolution and maintenance of androdioecy in a haplodiploid insect*, Evolution (2021) *equal contribution
- Ye, Z., **Molinier, C.**, Zhao, C., Haag, C. R., & Lynch, M. (2019). *Genetic control of male production in Daphnia pulex*. Proceedings of the National Academy of Sciences, 116(31), 15602-15609.
- Molinier, C.**, Reisser, C. M., Fields, P. D., Ségard, A., Galimov, Y., & Haag, C. R. (2019). *Evolution of gene expression during a transition from environmental to genetic sex determination*. Molecular biology and evolution, 36(7), 1551-1564.

Molinier, C., Reisser, C. M., Fields, P., Ségard, A., Galimov, Y., & Haag, C. R. (2018). *Identification of general patterns of sex-biased expression in Daphnia, a genus with environmental sex determination*. *G3: Genes, Genomes, Genetics*, 8(5), 1523-1533.

Scientific communications

- Molinier C.** et al. – Mitochondrial genomes and comparative analyses shed light on hybridization and speciation in *Ectocarpus sp.*, **Poster** at PopGroup Jan. 8-10th 2024 - 57th Population Genetics Group Meeting in person, St Andrew (Scotland)
- Reynes L.* & **Molinier C.*** et al. - Insight into the processes of introgression and speciation in *Ectocarpus sp.* using linked-reads sequencing, Feb. 01-02nd 2023 invitation at the haplotagging meeting (Rennes, France) *equal contribution
- Molinier C.** Haag C. R., Lenormand T., *Asexuality is not faithfully transmitted by contagion in Daphnia pulex*, **Talk** at PopGroup Jan. 4-6th 2023 - 56th Population Genetics Group Meeting in person, Queen Mary University of London (UK)
- Molinier C.**, Haag C. R., Lenormand T. *in prep. Contagious asexuality in Daphnia pulex reveals a surprising diversity of reproductive modes*. **Talk** at the satellite symposium of the ESEB Congress “Genomic signatures and consequences of sex and asexuality” 16.-17. June 2021
- Molinier C.**, Haag C. R., Reisser C., Fields P., Ségard A., Galimov Y. (2018). *Evolution of gene expression during a transition from environmental to genetic sex determination in Daphnia magna*. **Talk** at the 25th EMPSEB (European Meeting of PhD Students in Evolutionary Biology), 26 May -1 June 2019 in Pedrógão Pequeno, Portugal.
- Molinier C.**, Haag C. R., Reisser C., Fields P., Ségard A., Galimov Y. (2018). *Evolution of gene expression during a transition from environmental to genetic sex determination in Daphnia magna*. **Poster** at the CNRS, Jacques Monod Conference “Sex uncovered: the evolutionary biology of reproductive systems”, 23-27 April 2018 in Roscoff, France.

Reviewer and outreach contributions

- 2023 Reviewed for BMC Genomics (1)
- 2020 Reviewed for Freshwater Biology (1)
- 2019 Reviewed for BMC Genomics (1)
- 2019 Cover image for MBE (Molecular Biology and Evolution) journal
- Organizing committee of the non-permanent scientific day at the CEFE (2018), Max Planck Task Force (2023), organization leader of a workshop on Speciation and sex chromosomes evolution (2024)

Teaching and supervision experiences

- 2023 (4 months) Supervision of Sabrina Carli (PhD student)
- 2023 Supervision of Ilias Kontos (1st year master's student)
- 2022-2023 Supervision of Sabrina Carli (technician)
- 2018-19 48h of graduate teaching (Bachelor 1 and 3). Fundamental concepts in evolutive ecology, Animals and plants development, Mendelian genetics
- 2021 (5,5 months) Supervision of Cassandra Clément (1st year master's student)
- 2021 (3 months) Supervision of Victor Lezaud (1st year master's student)
- 2020 (1 month) Supervision of Héloïse Calzan (3rd year bachelor's student)
- 2020 (4 months) Supervision of Pauline Guérin (2nd year master's student)

Fellowships

Salto award (2000 € + 20000 € for workshop organisation)

Funding of mobility (3000 €) from the Mediterranean Centre for Environment and Biodiversity Laboratory of Excellence (CeMEB LabEx), France

Scientific skills

Data-acquisition:

- Experimental design conception,
- Field and lab experimentations: husbandry and handling *Daphnia sp.* and *Ectocarpus sp.*, cross-mating, hormonal protocol, algae sampling campaign (27th of March to 14th of April 2023 – Japan)
- Molecular biology: primer design, DNA extraction, PCR, genotyping using microsatellites, libraries construction (Rad-Seq, Haplotagging, Hi-C, Nanopore)

Computing:

- Linux exploitation system
- Programming software: R, bash, Mathematica
- High sequencing data handling: RAD-Seq, RNA-Seq, Pool-Seq, Haplotagging, Hi-C

Analyses:

Differential gene expression analysis (DEseq2, WGCNA), genetic map construction (LepMap3, LepAnchor), QTL mapping (RQtl), Population genetic structure (Bayesian classification methods, GWAS), Model constructions (GLMM, Mathematica)

Workshops & Training

Sept. 21-22nd 2022 - Reads2genpop: From sequence reads to genomes and populations, Paris (France)

Feb. 01-02nd 2023 - Haplotagging meeting Rennes (France)

June 19-21st of 2023 - Tree of sex workshop v2 kick-off workshop (online), Wellcome Genome Campus close to Cambridge (UK).

Oct. 10-11th 2022 - Career Development through Research Funding, 12h, Graduate Academy of the University of Tuebingen

Nov. 28-29 & Dec. 5-6 2022 - Grant proposal Writing (online), 16h, Graduate Academy of the University of Tuebingen

Jan. 23-27th 2023 - Sex Chromosome Evolution (online), 30h, Physalia course