

Clément Lafon Placette

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Education

2008 – 2012 PhD in plant epigenomics and physiology. Dissertation: “DNA methylation control of phenotypic plasticity in response to drought in poplar”. Orléans University, France.
2006 – 2008 M. Sc. in plant biology and physiology. Paris University (Pierre & Marie Curie), France. Dissertation: “Development of a strategy to screen epigenetic markers for bolting tolerance in Beta vulgaris genotypes”
2003 – 2006 B. Sc. in organisms biology and ecology. Paris University (Orsay), France

Positions held

2018 – now Assistant Prof. at Charles University, Prague, Czech Republic
2013 – 2018 Postdoctoral researcher, hybridization barriers in Capsella and Arabidopsis, Prof. C. Köhler’s lab. Swedish University of Agricultural Sciences, Uppsala, Sweden
2011 – 2012 Teaching and Research Associate. Prof. S. Maury’s group, Orléans University, France

Obtained research funding

2019 – 2023 Primus grant, Charles University in Prague, Czech Republic. *Plant reproduction evolution. Establishment of a new research group in plant sexual biology.* 10M CZK (400 000 EUR)
2016 SciLife Lab National Project, SciLife Lab, Sweden. *Identifying the genetic determinants of the postzygotic reproductive barrier between Capsella rubella and C. grandiflora.* 130 000 SEK (13 000 EUR)
2015 Nilsson Ehle grant, The Royal Physiographic Society of Lund, Sweden. *The genetic basis of the postzygotic reproductive barrier between Capsella rubella and C. grandiflora.* 79 000 SEK (8 000 EUR)

Merits in teaching and pedagogical competences

Students and postdocs supervision

2020 – 2024 Mohammad J. Haghghatnia, PhD Student. Department of Botany, Charles University in Prague, Czech Republic. **Main supervisor**
2020 – 2024 Susnata Salony, PhD Student. Department of Botany, Charles University in Prague, Czech Republic. **Co-supervisor**
2020 – 2024 Marketa Pilneyova, PhD Student. Department of Botany, Charles University in Prague, Czech Republic. **Co-supervisor**
2019 – 2022 Ashish K. Pathak, postdoc researcher. Topic: hybrid seed lethality evolution. Department of Botany, Charles University in Prague, Czech Republic. **Main supervisor**
2019 – 2023 Ömer Iltas, PhD Student. Topic: role of sexual selection in plant reproduction evolution. Department of Botany, Charles University in Prague, Czech Republic. **Main supervisor**
2008 – 2016 Supervision of 1 Bachelor student and 4 Master students as **main supervisor**

Teaching activities

- Since 2018** Creator and leader of the Master courses “Genomics of Speciation and Adaptation”, “Transposable elements: from junk DNA to major drivers of biodiversity”, “Plant Epigenetics” and “Skills in pedagogy, communication and self confidence in science”, Department of Botany, Charles University
- 2008 – 2018** Teacher in Bachelor and Master courses (genetics, ecology, anatomy), Orléans University, Swedish University of Agricultural Sciences

Scientific Outreach

- 2015 – 2018** Tutor at Karlskoga Science Camp (Karlskoga, Sweden): a summer camp for highschool students to get an initiation to scientific research

Other academic merits

Institutional responsibilities

- 2019** Reviewer and jury member of Natalia Wozniak’s PhD defense, Potsdam University, Germany.
- 2018** Member of the PhD studies committee of the Department of Botany, Charles University in Prague, Czech Republic.

Organization of international conference

- 2019** Chairperson of the “Molecular Evolution” session of the Plant Biology CS conference in Ceske Budejovice, Czech Republic
- 2015** Co-organizer of the EMBO conference on "Mechanisms of Plant Speciation" in Stockholm, Sweden

Editorial role for international peer-reviewed journals

- 2020** Editor of the Research Topic “Reproductive Strategies in Plants: Shaping Genes, Genomes, Populations and Species?” for *Frontiers in Plant Science*.
<https://www.frontiersin.org/research-topics/13605/>
- 2012 – now** Reviewer for *The Plant Cell*, *Molecular Ecology*, *Evolutionary Ecology*, *Scientific Reports*, *PLoS ONE*, *Heredity*, *Plant Reproduction*, *Genetics*, *BMC Plant Biology*.

Invited speaker

- 2019** Seminar of the Institute for Biochemistry and Biology, Potsdam University, Germany. Presentation title: "Sexual selection and sexual conflict in plants: how to see the invisible".
- 2019** Seminar of the Institute of Experimental Botany, Olomouc, Czech Republic. Presentation title: "Endosperm development: bridging the gap between molecular mechanisms and evolutionary processes".
- 2017** SEMIDEEV seminar, INRA Le Moulon, France. Presentation title: "Interrelation between mating systems, hybridization barrier, genomic imprinting and transposable elements".
- 2016** ACE Seminar Series, ETH Zürich, Switzerland. Presentation title: "Endosperm-based hybridization barriers, a matter of genomic strength"

Scientific impact

Bibliography summary

28 articles, 945 citations, h-index 15 (Google Scholar, September 2021)

Svitok M, Venon A, Morgan E, Chimetto G, Deniz U, Kolář F, **Lafon Placette C***. Embryo and endosperm development remains robustly interconnected despite genetic, ploidy and environmental variation in *Arabidopsis arenosa*. Under revision in *New Phytologist*. * corresponding author.

Sammarco I, Pieters J, Salony S, Toman I, Zolotarov G, **Lafon Placette C***. Epigenetic targeting of transposon relics: beating the dead horses of the genome? Submitted to *Epigenetics*. * corresponding author.

İltaş O, Svitok M, Cornille A, Schmickl R, **Lafon Placette C*** (2021). Early evolution of reproductive isolation: a case of weak inbreeder/strong outbreeder leads to an intraspecific hybridization barrier in *Arabidopsis lyrata*. *Evolution*, doi: [10.1111/evo.14240](https://doi.org/10.1111/evo.14240). * corresponding author.

Dziasek K, Simon L, **Lafon Placette C**, Laenen B, Wärdig C, Santos-González J, Slotte T, Köhler C (2021). Hybrid seed incompatibility in *Capsella* is connected to chromatin condensation defects in the endosperm. *PLoS Genetics*, doi: [10.1371/journal.pgen.1009370](https://doi.org/10.1371/journal.pgen.1009370).

Morgan EJ, Čertner M, Lučanová M, Deniz U, Kubíková K, Venon A, Kovářík O, **Lafon Placette C**, Kolář F (2021). Disentangling the components of triploid block and its fitness consequences in natural diploid-tetraploid contact zones of *Arabidopsis arenosa*. *New Phytol*, doi: [10.1111/nph.17357](https://doi.org/10.1111/nph.17357).

Kučera J, Štubňová EG, Svitok M, Martónfióvá L, **Lafon Placette C** and Slovák M (2021). Eunuchs or females? Causes and consequences of gynodioecy on morphology, ploidy and ecology of *Stellaria graminea* L. (Caryophyllaceae). *Front Plant Sci*, doi: [10.3389/fpls.2021.589093](https://doi.org/10.3389/fpls.2021.589093).

Bachmann JA, Tedder A, Fracassetti M, Steige KA, **Lafon Placette C**, Köhler C, Slotte T (2021). On the origin of the widespread self-compatible allotetraploid *Capsella bursa-pastoris* (Brassicaceae). *Heredity*, doi: [10.1038/s41437-021-00434-9](https://doi.org/10.1038/s41437-021-00434-9).

Lafon Placette C* (2020). Endosperm genome dosage, hybrid seed failure and parental imprinting: sexual selection as an alternative to parental conflict. *Am J Bot* **107**(1): 1–3 (invited article). * corresponding author.

Bachmann JA, Tedder A, Laenen B, Fracassetti M, Désamoré A, **Lafon Placette C**, Steige KA, Callot C, Marande W, Neuffer B, Bergès H, Köhler C, Castric V, Slotte T (2019). Genetic basis and timing of a major mating system shift in *Capsella*. *New Phytol* **224**: 505–517.

Le Gac AL, **Lafon Placette C**, Delaunay A, and Maury S (2019). Developmental, genetic and environmental variations of global DNA methylation in the first leaves emerging from the shoot apical meristem in poplar trees. *Plant Signal Behav* **14**(6):1596717.

Maury S, Sow MD, Le Gac AL, Genitoni J, **Lafon Placette C**, Mozgova I (2019). Phytohormone and chromatin crosstalk: the missing link for developmental plasticity? *Front Plant Sci* **10**:395.

Lafon-Placette C, Hatorangan MR, Steige K, Cornille A, Lascoux M, Slotte T and Köhler C (2018). Paternally expressed genes likely underpin the endosperm balance number in *Capsella* genus. *Nat Plants* **4**:352–357.

Dia Sow M, Segura V, Chamaillard C, Jorge V, Delaunay A, **Lafon-Placette C**, Fichot R, Faivre-Rampant P, Villar M, Brignolas F, Maury S (2018). Narrow-sense heritability and PST estimates of DNA methylation in three *Populus nigra* L. populations under contrasting water availability. *Tree Genet Genomes* **14**:78.

Le Gac AL, **Lafon-Placette C**, Chauveau D, Segura V, Delaunay A, Fichot R, Marron N, Le Jan I, Berthelot A, Bodineau G, Bastien JC, Brignolas F, Maury S (2018). Winter-dormant shoot apical meristem in poplar trees shows environmental epigenetic memory. *J Exp Bot* **69**(20): 4821–4837.

Lafon-Placette C, Le Gac AL, Chauveau D, Ségura V, Delaunay A, Lesage-Descauses MC, Hummel I, Jesson B, Le Thiec D, Bogeat-Triboulot MB, Brignolas F and Maury S (2018). Changes in the epigenome and transcriptome of the poplar shoot apical meristem in response to water availability affect preferentially hormone pathways. *J Exp Bot* **69** (3): 537–551.

Lafon-Placette C, Johannessen IM, Hornslien KS, Ali MF, Bjerkan KN, Bramsiepe J, Glöckle BM, Rebernic CA, Brysting AK, Grini PE and Köhler C (2017). Endosperm-based hybridization barriers explain the pattern of gene flow between *Arabidopsis lyrata* and *Arabidopsis arenosa* in Central Europe. *PNAS*, doi: [10.1073/pnas.1615123114](https://doi.org/10.1073/pnas.1615123114).

Lafon-Placette C and Köhler C (2016). Endosperm-based postzygotic hybridization barriers: developmental mechanisms and evolutionary drivers. *Mol Ecol*, doi: [10.1111/mec.13552](https://doi.org/10.1111/mec.13552).

Rebernik CA, **Lafon-Placette C**, Hatorangan MR, Slotte T and Köhler C (2015). Non-reciprocal interspecies hybridization barriers in the *Capsella* genus are established in the endosperm. *PLoS Genet* **11**, e1005295.

Lafon-Placette C, Vallejo-Marin M, Parisod C, Abbott RJ and Köhler C (2015). Current plant speciation research: unravelling the processes and mechanisms behind the evolution of reproductive isolation barriers. *New Phytol* **209**(1):29-33.

Köhler C and **Lafon-Placette C** (2015). Evolution and function of epigenetic processes in the endosperm. *Front Plant Sci* **6**:130.

Lafon-Placette C and Köhler C (2015). Epigenetic mechanisms of postzygotic reproductive isolation in plants. *Curr Opin Plant Biol* **23**:39-44.

Lafon-Placette C and Köhler C (2014). Embryo and endosperm, partners in seed development. *Curr Opin Plant Biol* **17**:64-9.

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Hébrard C, Trap-Gentil MV, **Lafon-Placette C**, Delaunay A, Joseph C, Lefebvre M, Barnes S and Maury S (2013). Identification of epialleles during vernalization unravels a control of bolting tolerance by RNA methylation. *J Exp Bot* **64**(2):651-63.

Bräutigam K, Vining KJ, **Lafon-Placette C**, Fossdal C, Mirouze M, Marcos JG, Fluch S, Fraga MF, Guevara MA, Abarca DJ, Øystein, Maury S, Strauss SH, Campbell M, Rohde A, Díaz-Sala C and Cervera MT (2013). Epigenetic regulation of adaptive response of forest tree species to the environment. *Ecol Evol* **3**(2):399-415.

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Gourcilleau D, Bogeat-Triboulot MB, Le Thiec D, **Lafon-Placette C**, Delaunay A, El-Soud WA, Brignolas F and Maury S (2010). DNA methylation and histone acetylation: genetic variations in hybrid poplars, impact of water deficit and relationships with productivity. *Ann For Sci* **67**:208.