

Clément Lafon Placette

Born August 8, 1985 in Tarbes (France)
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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. Haghighatnia, 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, Martónfiová 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, Rebernig 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**.

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.

Tocquard K, **Lafon-Placette C**, Auguin D, Muries B, Bronner G, Lopez D, Fumanal B, Franchel J, Bourgerie S, Maury S, Label P, Julien JL, Roeckel-Drevet P and Venisse JS (2014). In silico study of wall-associated kinase family reveals large-scale genomic expansion potentially connected with functional diversification in *Populus*. *Tree Genet Genomes* **10**(5):1135-1147.

Lafon-Placette C, Faivre-Rampant P, Street N, Delaunay A, Brignolas F and Maury S (2013). Methylome of DNase I sensitive chromatin in *Populus trichocarpa* shoot apical meristematic cells: a simplified approach revealing characteristics of gene-body DNA methylation in open chromatin state. *New Phytol* **197**(2):416-30.

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.