Julien JOSEPH

Evolutionary biologist
Laboratoire de biométrie et biologie évolutive, Lyon
Languages: French (native) English and Spanish (Fluent)

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Mastodon Profile

Education

2013-2014: First year of BCPST preparatory classes (biology, chemistry, physics, and earth sciences) in preparation for the competitive entrance exam for all the agronomy, veterinary and geology school in France. Lycee Chaptal (Paris)

2014-2015: Second year of preparatory classes. Admitted to all the agronomy, veterinary and geology schools, Ecole Normale Superieure de Paris-Saclay and Ecole Normale Superieure de Lyon. I accepted the offer to attend the Ecole Normale Superieure de Lyon.

2015-2016: Third year of Bioscience Bachelor degree studies at Ecole Normale Superieure de Lyon. (L3)

2016-2017: First year of Bioscience master degree program at Ecole Normale superieure de Lyon. With a focus in ecology, population genetics, and evolution.

2018-2019: Second year of the complex system master degree program at Ecole Normale supérieure de Lyon. With a focus on complex network analysis, graphs, and dynamical systems. (M2)

Research experience

June-July 2016: Seven week research internship with the Museum d'Histoire Naturelle de Paris (France) under the supervision of Sebastien Duperron. The area of focus being protist communities associated with animals living in deep sea chemosynthetic ecosystems.

January-June 2017: Five month internship at the Institut de Genomique Fonctionnelle de Lyon (France) under the supervision of Nicolas Goudemand. The area of focus being growth models of conodont elements.

January-June 2019: Five month internship at the Centro Atómico de Bariloche (Argentina) under the supervision of Guillermo Abramson. The aim being to determine the impact of the landscape structure on the pollination service with a modeling approach. I also participated in a monitoring program (by telemetry) of a nocturnal endemic Patagonian marsupial, *Dromyciops gliroides*.

September 2019-January 2020: Five month internship at the LBBE (Lyon, France) under the supervision of Laurent Duret. I reconstructed and analyzed the Coho Salmon recombination landscape using population genomics data.

September 2020-December 2023 PhD in evolutionary genomics under the supervision of Laurent Duret and Nicolas Lartillot. Title: The interplay between recombination hotspots, GC-biased gene conversion and natural selection

Technical Skills

-Developing and leading collaborative research projects
-Coding in Python and bash. Parallelizing Python algorithms on Nvidia graphic cards.
-Using computing clusters to parallelize jobs.
-Analyzing genetic or genomic data with Python.

Publications (4)

My name is in bold when I am first author and underlined when I am corresponding author.

Aurore Comte, Théo Tricou, Eric Tannier, Julien Joseph, Aurélie Siberchicot, Simon Penel, Rémi Allio, Frédéric Delsuc, Stéphane Dray, and Damien M de Vienne. 2023. "*PhylteR: Efficient Identification of Outlier Sequences in Phylogenomic Datasets.*" Molecular Biology and Evolution.

Fernanda Santibáñez, Julien Joseph, Guillermo Abramson, Marcelo N. Kuperman, María Fabiana Laguna, and Lucas A. Garibaldi. 2022. "*Designing Crop Pollination Services: A Spatially Explicit Agent-Based Model for Real Agricultural Landscapes.*" Ecological Modelling.

Laila Kazimierski, Nicolás Catalano, K. Laneri, Agustina Oliver, Gabriela Calzolari, Julien Joseph, Guillermo Amico, and Guillermo Abramson. 2021. "*Trajectory Assessment of the Vulnerable Marsupial Dromiciops Gliroides in the Patagonian Temperate Forest.*" Mammalian Biology.

Julien Joseph, Fernanda Santibáñez, María Fabiana Laguna, Guillermo Abramson, Marcelo N. Kuperman, and Lucas A. Garibaldi. 2020. "*A Spatially Extended Model to Assess the Role of Landscape Structure on the Pollination Service of Apis Mellifera.*" Ecological Modelling.

Preprints (3)

J. Joseph. 2024. "*Increased Positive Selection in Highly Recombining Genes Is Not an Evidence for an Evolutionary Advantage of Recombination*" bioRxiv. Under review in Molecular Biology and Evolution

J. Joseph, D. Prentout, A. Laverré, T. Tricou, and L. Duret. 2023. "*High Prevalence of Prdm9-Independent Recombination Hotspots in Placental Mammals.*" bioRxiv. Under review in PNAS

T. Latrille, **J. Joseph**, D. A. Hartasánchez, and N. Salamin. 2023. "*Mammalian Protein-Coding Genes Exhibit Widespread Beneficial Mutations That Are Not Adaptive.*" bioRxiv. Under review in PNAS

Conferences

AIEM-ALPHY 2022 (Rennes, France), Oral presentation: *Exploring the diversity of recombination landscapes in vertebrates*

AIEM-ALPHY 2023 (Grenobles, France), Oral presentation: *Recombination and selection efficiency in humans*

MCEB 2023 (Cargèse, France), Oral presentation: *Increased positive selection in highly recombining genes is not an evidence for a beneficial effect of recombination*

PopGroup57 2024 (St Andrews, Scottland), Oral presentation: *High prevalence of Prdm9-independent recombination hotspots in placental mammals*

Student supervision

April-June 2021: Three month Internship of Aurélie Fischer (Master student) on the recombination landscape of two species of *Ciona* (sea squirts). Co-supervision with Laurent Duret

January-June 2022: Five month internship of Jeanne Pithon (Master student) on the role of natural selection and GC-biased gene conversion in synonymous codon usage in humans. Co-supervision with Laurent Duret

May-July 2022: Seven week internship of Louis Schroll (Bachelor student) on the history of PRDM9 alleles in humans. Co-supervision with Laurent Duret

March-June: Four month internship of Augustin Clessin (Master student) on the evolution of GC-biased gene conversion. Co-supervision with Nicolas Lartillot