Julien Devilliers

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Research interests

I am an entomologist/evolutionary biologist, interested in the evolution of sensory system and communication in insects. My work combines phylogenomics, comparative transcriptomics, single-cell RNA-sequencing, whole genome sequencing, microscopy and behaviour. I mainly use mosquitoes and butterflies as study models. Current research interests include circadian rhythm tuning of the sensory system and polarised light vision.

Professional experience

Postdoctoral Associate, Virginia Tech (Blacksburg, VA, USA) 03/2025 – Present
Topic: Single-cell RNA-seq and circadian integration of temperature in mosquitoes.
Supervisor: Dr. Clément Vianuger.

Research Technician, University of Leicester (Leicester, UK) 11/2024 – 03/2025
Topic: Genome assembly and transcriptomics analysis of sexual dimorphism in mosquitoes.
Supervisor: Dr. Roberto Feuda.

Education

PhD, University of Leicester (Leicester, UK) 09/2021 – 01/2025
Thesis: Molecular characterisation and evolution of the sensory system in mosquitoes
Supervisors: Dr. Roberto Feuda, Prof. Ezio Rosato, Prof. Charalambos Kyriacou, Dr. Ben Warren.

MSc, Muséum National d'Histoire Naturelle (Paris, France) 09/2019 – 08/2021
Topics: Biology, Ecology and Evolution, specialised in Systematic, Evolution and Paleontology.
Thesis: Co-evolution of vision and blue iridescence in the blue *Morpho* butterfly genus.
Supervisors: Dr. Violaine Llaurens, Dr. Vincent Debat.

BSc, Université Jean-Monnet (Saint-Étienne, France) 09/2017 – 08/2019
Topics: Biology of organisms and populations.
Thesis: Phylogeny of *Perispherus* genus (Blaberidae, Perisphaerinae).
Supervisors: Dr. Frédéric Legendre (Muséum National d'Histoire Naturelle, Paris, France)

PACES (1st year of medicine), Université Jean-Monnet (Saint-Étienne, France) 09/2015 – 08/2017
Topics: Medicine (outside *numerus clausus*).

Funding

Research culture support funds (College of Life Sciences, University of Leicester, UK) **£600** 2023
PhD studentship (College of Life Sciences, University of Leicester, UK) **~£70,000** 2021

Awards

Full membership with the *Sigma Xi Scientific Research Honor Society* 2025

Teaching experience

Course Instructor, Department of Biochemistry (Virginia Tech, USA) Spring 2026

BCHM 4354: Biochemical Communication (*Undergraduates*)

Multidisciplinary investigation of odorant communication. Molecular biology, gene evolution, protein structure, statistical analysis, interpretation and critical scientific reading.

Lecture, College of Life Science (University of Leicester, UK) Summer 2024

Optional course: Introduction to *R* coding and visualisation (*PhD students*)

Lecture, College of Life Science (University of Leicester, UK) Summer 2024

Optional course: First year statistics [adapted with Prof. Eamonn Mallon] (*PhD students*)

Demonstration/marking, Department of Genetics (University of Leicester, UK) Spring 2024

BS1050: From Individuals to Populations – An Introduction to Genetics (*Undergraduates*)

Analysis of single nucleotide polymorphism in human populations mapping Sanger sequencing onto the human genome browser.

Demonstration, Department of Genetics (University of Leicester, UK) Spring 2022-2024

BS2009: Genomes (*Undergraduates*)

Wet lab demonstration with plasmid cloning and fruit fly phenotyping.

Supervision/Mentoring

PhD students:

Cara Dixon, Dr. Hollie Marshall's lab (University of Leicester, UK) 09/2025 – Present

as external supervisor

Darling de Andrade Lourenco, rotation student (Virginia Tech, VA, USA) 10/2025 – 11/2025

Meiers Dixon, rotation student (Virginia Tech, VA, USA) 08/2025 – 09/2025

MSc students:

Ruman Khalid, MSc student in biology (University of Leicester, Leicester, UK) 01/2024 – 07/2024

Harini Suresh, MSc student in biology (University of Leicester, Leicester, UK) 01/2023 – 07/2023

Undergraduate students:

Anna Korennaia, Undergraduate in biochemistry (Virginia Tech, VA, USA) 08/2025 – Present

Talks and Posters

Talks:

Ento24 (Royal Entomological Society) Liverpool, UK (2024)

Molecular evolution of vision: combining single-cell, bulk RNA-seq and microscopy to unravel the visual system in mosquitoes

3rd Joint Congress on Evolutionary Biology (ESEB/ASN/SSB/SSE) Montréal, Canada (2024)

Molecular evolution of vision in mosquitoes

Ento23 (Royal Entomological Society) Penryn, UK (2023)

Anopheles gambiae, male vs. female: a single cell transcriptomic approach

Ento22 (Royal Entomological Society) Lincoln, UK (2022)

Evolution of the sensory system in dipterans and the origin of hematophagy

Posters:

SMBE23 (Society of Molecular Biology and Evolution) Ferrara, Italy (2023)

Multiple emergences of hematophagy in Diptera: Is there a genetic background required for such behaviour?

EuroEvoDevo2022 (European Society for Evolutionary Developmental Biology) Naples, Italy (2022)

Evolution of the sensory system in mosquitoes

Other talks (Departemental visits):

Centre for Advance Study of Collective Behaviour 16/05/2024

Invited by Dr. James Foster (University of Konstanz, Konstanz, Germany)

Vice-chancellor's visit Department of Genetics and Genomes Biology 11/01/2024

Invited by Dr. Jacqui Shaw (Head of the Department, University of Leicester, Leicester, UK)

Évolution et Développement des Variations Phénotypiques (EDVP) team 13/03/2023

Invited by Joséphine Ledamoisel (PhD student, Institut de Systématique, Évolution, Biodiversité, MNHN, Paris, France)

Outreach

BugFest 2025 (Virginia Tech, USA) 18/10/2025

Mosquito larvae exhibition.

Kids Tech University 2025 (Virginia Tech, USA) 05/04/2025

Mosquito larvae exhibition.

AutumnFest 2023 (University of Leicester, UK) 15/08/2023

Exhibition bugs (mosquitoes [larvae and adults], bumblebees and wasps) to Alumni community.

Pint of Science 2023 (The Globe, Leicester, UK) 24/05/2023

Public talk on insect colour vision.

Professional services

Post-Graduate Researchers representative 25/09/2022 – 25/09/2024

Department of Genetics and Genome Biology, University of Leicester, UK

Post-Graduate Researchers week organisation committee 06/2024

Organisation of two weeks training and activities to improve mental health and research culture (College of Life Sciences, University of Leicester, UK).

Neurogenetics group retreat organisation committe 07/11/2023

Organisation of a group retreat (one week) in Chester (University of Leicester, UK)

Peer-Review: PLOS One, PNAS, Animal Behavior, Acta Parasitologica.

Referees

Dr. Clément Vianuger	**Dr. Roberto Feuda**	**Dr. Violaine Llaurens**
Current supervisor	PhD supervisor	MSc supervisor
Virginia Tech, USA	University of Bologna, Italy	Collège de France, France
Associate Professor	Associate Professor	CNRS Research Director
vinauger@vt.edu	roberto.feuda@unibo.it	violaine.llaurens@college-de-france.fr

Publications

Original research articles:

Goldman OV, DeFoe AE, Qi Y, Jiao Y, Weng SC, Wick B, …, **Devilliers J,** *et al.* (2025) A single-nucleus transcriptomic atlas of the adult *Aedes aegypti* mosquito. *Cell*, 188, 1–24. doi: 10.1016/j.cell.2025.10.008

Devilliers, J., Warren, B., Rosato, E., Kyriacou, C.P. & Feuda, R. (2025) Hematophagy Generates a Convergent Genomic Signature in Mosquitoes and Sandflies. *Genome Biology and Evolution*, 17, evaf044. doi: 10.1093/gbe/evaf044

Devilliers, J., Marshall, H., Warren, B., Kyriacou, C.P., Araripe, L.O., Bruno, R.V., *et al.* (2024) Molecular correlates of swarming behaviour in *Aedes aegypti* males. *Biology Letters*, 20, 20240245. doi: 10.1098/rsbl.2024.0245

Zadra, N., Tatti, A., Silverj, A., Piccinno, R., **Devilliers, J.**, Lewis, C., *et al.* (2023) Shallow Whole-Genome Sequencing of *Aedes japonicus* and *Aedes koreicus* from Italy and an Updated Picture of Their Evolution Based on Mitogenomics and Barcoding. *Insects*, 14, 904. doi: 10.3390/insects14120904

Book chapters:

Devilliers, J., Emili, E., Vanni, V., Solana, J., Feuda, R. (2025). An Optimized SPLiT-Seq Protocol for Insects. In: Bonizzoni, M., Ometto, L. (eds) *Insect Genomics.* Methods in Molecular Biology, 2935. Humana, New York, NY. doi: 10.1007/978-1-0716-4583-3_11

Preprints - submitted manuscripts:

Ledamoisel, J., Dang, A., **Devilliers, J.**, Marvillet, T., Lemoine, S., Lopez-Villavicencio, M., *et al.* (2025) Evolution of opsin genes in closely-related species of butterflies specialized in different microhabitats. *BioRxiv.* doi: 10.1101/2025.06.13.659549

PhD thesis:

Devilliers, J. (n.d.) Molecular characterisation and evolution of the sensory system in mosquitoes. doi: 10.25392/leicester.data.28343051