

Curriculum Vitae Charikleia Karageorgiou

Postdoctoral Researcher, Department of Biological Sciences, University at Buffalo

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EDUCATION

Sept 2017 – Sept 2022	PhD <i>summa cum laude</i> , Evolutionary Genetics, Universitat Autònoma de Barcelona, Spain. Supervisors: <u>Dr. Francisco Rodríguez-Trelles</u> & <u>Dr. Rosa Tarrío</u>
Sept 2016 – July 2017	MSc Bioinformatics, Universitat Autònoma de Barcelona, Spain.
Sept 2014 – July 2015	MSc Advanced Genetics, Universitat Autònoma de Barcelona, Spain.
Sept 2011 – June 2014	BSc (Hons) Biomedicine, University of East Anglia, United Kingdom.

ACADEMIC POSITIONS

Jan 2023 – Present	Postdoctoral Researcher, Dept. Biological Sciences, University at Buffalo, SUNY, NY, USA. Mentor: <u>Dr. Omer Gokcumen</u>
Dec 2021 – July 2022	Research Fellow, Institute of Computer Science, Foundation for Research and Technology Hellas - Greece. Supervisor: <u>Dr. Pavlos Pavlidis</u>
July 2015 – Dec 2016	Research Assistant, Grup de Genòmica, Bioinformàtica i Biologia Evolutiva, Universitat Autònoma de Barcelona, Spain.

VISITING POSITIONS & INTERNSHIPS

Oct 2025 – Nov 2025	Visiting Researcher, Center for Interdisciplinary Theoretical and Mathematical Sciences, RIKEN, Japan. Mentor: <u>Dr. Leo Speidel</u>
Aug 2021 – Feb 2022	Visiting PhD Researcher, Institute of Molecular Biology and Biotechnology, Foundation for Research and Technology Hellas, Greece. Funded by Marie Skłodowska-Curie Actions, Research and Innovation Staff Exchange (RISE). Supervisor: <u>Dr. John Vontas</u>
Feb 2021 – June 2021	PhD Internship, University of Zürich, Switzerland. Supervisor: <u>Dr. Martin Kapun</u>

HONORS & AWARDS

2025	DeLill Nasser Award for Professional Development in Genetics, Genetics Society of America. (\$1,000)
2022	<i>Summa Cum Laude</i> , PhD Defense, Universitat Autònoma de Barcelona, Spain.
2020	Swiss-European Mobility Programme (SEMP) Grant (440 CHF/month, declined due to COVID-19 pandemic)
2017 – 2022	PIF PhD fellowship from the Universitat Autònoma de Barcelona, Spain. (~75,000 €)

PUBLICATIONS & PREPRINTS

* denotes co-first authorship, # denotes corresponding author

10. Acharjee, M., Humphrey, K., Lactaoen, V., **Karageorgiou, C.**, Liu, B., Gokcumen, O. and Rusche, L.[#]. 2025. The deacetylase Sir2 is the primary sensor driving transcriptional changes in response to low NAD⁺ in the yeast *Kluyveromyces lactis*. *In revision*.

9. **Karageorgiou, C.**, Ruhl S. and Gokcumen, O.[#], 2025. Convergent evolution through independent rearrangements in the primate amylase locus. *Under review*. [doi: <https://doi.org/10.1101/2025.08.14.670395>]

8. Scheer, K.*, Landau, L.J.B.*, Jorgensen, K., **Karageorgiou, C.**, Siao, L., Alkan, C., Morales-Rivera, A.M., Osbourne, C., Garcia, O., Pearson, L., Kiyamu, M., Rivera-Chira, M., Leon-Velarde, F., Lee, F., Brutsaert, T., Bigham, A.W.# and Gokcumen, O.#, 2025. Adaptive Increase of Amylase Gene Copy Number in Peruvians Driven by Potato-rich Diets. *In revision*. [doi: <https://doi.org/10.1101/2025.03.25.644684>]
7. Running, L.*, Cristobal, J.R.*, **Karageorgiou, C.**, Camdzic, M., Aguilar, J.M.N., Gokcumen, O., Aga, D.S.# and Atilla-Gokcumen, G.E.#, 2024. Investigating the Mechanism of Neurotoxic Effects of PFAS in Differentiated Neuronal Cells through Transcriptomics and Lipidomics Analysis. *ACS Chemical Neuroscience*, 15(24), pp.4568-4579. [doi: <https://doi.org/10.1021/acscchemneuro.4c00652>]
6. Yilmaz, F.*, **Karageorgiou, C.***, Kim, K.*, Pajic, P., Scheer, K., Human Genome Structural Variation Consortium, Beck, C.R., Torregrossa, A.M., Lee, C.# and Gokcumen, O.#, 2024. Reconstruction of the human amylase locus reveals ancient duplications seeding modern-day variation. *Science*, 386(6724), p.eadn0609. [doi: <https://doi.org/10.1126/science.adn0609>]
5. Papadadonakis, S., Kioukis, A., **Karageorgiou, C.**, and Pavlidis, P.# 2024. Evolution of gene regulatory networks by means of selection and random genetic drift. *PeerJ*, 12, e17918. [doi: <https://doi.org/10.7717/peerj.17918>]
4. **Karageorgiou, C.**, Gokcumen, O. and Dennis, M.#, 2024. Deciphering the Role of Structural Variation in Human Evolution: A Functional Perspective. *Current Opinion in Genetics & Development*, 88, p.102240. [doi: <https://doi.org/10.1016/j.gde.2024.102240>]
3. Labbé, F., et al., 2023. Genomic analysis of two phlebotomine sand fly vectors of *Leishmania* from the New and Old World. *PLoS Neglected Tropical Diseases*, 17(4), p.e0010862. [doi: <https://doi.org/10.1371/journal.pntd.0010862>]
2. **Karageorgiou, C.#**, Tarrío, R.# and Rodríguez-Trelles, F.#, 2020. The Cyclically Seasonal *Drosophila subobscura* Inversion O₇ Originated From Fragile Genomic Sites and Relocated Immunity and Metabolic Genes. *Frontiers in genetics*, 11, p.1190. [doi: <https://doi.org/10.3389/fgene.2020.565836>]
1. **Karageorgiou, C.#**, Gámez-Visairas, V., Tarrío, R.# and Rodríguez-Trelles, F.#, 2019. Long-read based assembly and synteny analysis of a reference *Drosophila subobscura* genome reveals signatures of structural evolution driven by inversions recombination-suppression effects. *BMC genomics*, 20(1), p.1-21. [doi: <https://doi.org/10.1186/s12864-019-5590-8>]

TEACHING & MENTORSHIP

Mentoring:

▫ Carsyn Bonesteel, University at Buffalo, 2024 – Present. BSc Student. Mentoring her independent research project on the evolutionary and functional impact of the hominin-specific *ACOT1* gene duplication on metabolic health.

Awards under supervision:

- ▶ Gerace Dean's Innovation Fund Award, May 2025
- ▶ Best Idea Award, Department of Biological Sciences, December 2024
- ▶ SUNY Summer Undergraduate Research Program (SURP), paid research internship, Summer 2025

▫ Rebekah Sheih, University at Buffalo, Summer 2024. BSc REU Student. Supervised her REU project on characterizing the evolutionary history of the *ACOT1* locus.

Currently: PhD Student at UConn Health.

▫ Eliseo Pampín Bello, Universitat Autònoma de Barcelona, 2017 – 2018. Mentored MSc student and supervised MSc Thesis “Genomic localization and evolutionary history of two aminopeptidase genes long-known to exhibit systematic patterns of spatiotemporal variation in natural populations of *Drosophila*”.

Teaching:

101963 - Genetics, BSc Genetics, Faculty of Biosciences, Universitat Autònoma de Barcelona, 2017 – 2021. Lectures on *Drosophila* morphology, Genetic linkage & mapping, Recombination, and Population Genetics.

INVITED SEMINARS

- 2025 Why complexity persists: Evolutionary dynamics of the amylase locus in primates, **Invited Seminar**, Biology Seminar, iTHEMS, RIKEN, Japan.
- 2025 Reconstruction of the human amylase locus reveals ancient duplications seeding modern-day variation, **Invited Seminar**, Brock University, St Catharines, Canada.
- 2024 Ancient *AMY1* gene duplications primed the amylase locus for adaptive evolution upon the onset of agriculture, **Invited Seminar**, Biological Sciences Seminar Series, University at Buffalo, NY, USA.
- 2022 Comparative population genomics of natural populations of *Drosophila subobscura*: Understanding the establishment and maintenance of chromosomal inversion polymorphisms. **Invited Seminar**, The Eric Lai Lab, Sloan Kettering Institute, NY, USA.
- 2022 Comparative population genomics of natural populations of *Drosophila subobscura*: Understanding the establishment and maintenance of chromosomal inversion polymorphisms. **Invited Seminar**, Gokcumen Lab, University at Buffalo, NY, USA.
- 2021 Population genomics of inversion polymorphisms in *Drosophila subobscura*: Mechanisms of establishment and maintenance, **Invited Seminar**, Pavlidis Lab, FORTH, Crete, Greece.

CONFERENCE CONTRIBUTIONS

- 2025 Convergent evolution through recurrent rearrangements and regulatory rewiring in the primate amylase locus, **Talk**, ESEB 2025, Barcelona, Spain.
- 2025 Reconstruction of the human amylase locus reveals ancient duplications seeding modern-day variation, **Poster**, ESEB 2025, Barcelona, Spain.
- 2025 Why this locus? Recurrent duplications and extensive structural polymorphism at the amylase locus in humans and non-human primates, **Talk**, Ecological and Evolutionary Genomics, Gordon Research Conference, Renaissance Tuscany Il Ciocco, Italy.
- 2025 Convergent evolution through recurrent rearrangements in the primate amylase locus, **Talk**, Evolution 2025, Athens, GA, USA.
- 2025 Reconstruction of the human amylase locus reveals ancient duplications seeding modern-day variation, **Poster**, Evolution 2025, Athens, GA, USA.
- 2025 Reconstruction of the human amylase locus reveals ancient duplications seeding modern-day variation, **Talk**, Virtual Evolution 2025, Athens, GA, USA.
- 2025 Convergent evolution through recurrent rearrangements in the primate amylase locus, **Talk**, Virtual Evolution 2025, Athens, GA, USA.
- 2024 Reconstruction of the human amylase locus reveals ancient duplications seeding modern-day variation, **Poster**, Annual Postdoctoral Research Symposium, University at Buffalo, NY, USA.
- 2024 Reconstruction of the human amylase locus reveals ancient duplications seeding modern-day variation, **Talk**, GLAM EvoGen 2024, Syracuse University, NY, USA.
- 2024 Paleolithic gene duplications primed adaptive evolution of human amylase locus upon agriculture, **Poster**, SBE 2024, Puerto Vallarta, Mexico.
- 2023 Modeling the evolutionary and functional impact of genomic structural variation in mammalian saliva. **Poster**, Ecological and Evolutionary Genomics, Gordon Research Conference, Bryant University, RI, USA.
- 2022 Disentangling the origin of the Cretan wild goat *Capra aegagrus cretica*. **Talk**, 15th International Congress on the Zoogeography and Ecology of Greece and Adjacent Regions, Mytilene, Greece.
- 2022 Disentangling the origin of the Cretan wild goat *Capra aegagrus cretica*. **Talk**, Third Joint NEOMATRIX Meeting. Virtual.
- 2021 The cyclically seasonal *Drosophila subobscura* inversion *O₇* originated from fragile genomic sites and relocated immunity and metabolic genes. **Poster**, SBE 2021. Virtual.

- 2021 The cyclically seasonal *Drosophila subobscura* inversion *O*₇ originated from fragile genomic sites and relocated immunity and metabolic genes. **Poster**, SMRT Leiden 2021 – Young Investigator Virtual Conference. Virtual.
- 2019 Long-read based assembly and synteny analysis of a reference *Drosophila subobscura* genome reveals signatures of structural evolution driven by inversions recombination-suppression effects. **Poster**, VII Jornada de Bioinformatica i Genomica, Barcelona, Spain.
- 2019 Long-read based assembly and synteny analysis of a reference *Drosophila subobscura* genome reveals signatures of structural evolution driven by inversions recombination-suppression effects. **Poster**, European Drosophila Research Conference (EDRC), Lausanne, Switzerland.
- 2019 Comparative population genomics of natural populations of *Drosophila subobscura*. **Talk**, VII Jornades de Biorecerca UABio. Universitat Autònoma de Barcelona. Barcelona, Spain.
- 2018 The genome of *Drosophila subobscura*. **Talk**, VI Jornades de Biorecerca UABio. Universitat Autònoma de Barcelona, Barcelona, Spain.

APPOINTMENTS & EDITORIAL ROLES

- Editor:** Associate Editor for *Heredity* (2025 – Present).
- Guest-Editor:** *Heredity*, Special Issue: *Functional and Adaptive Effects of Genomic Structural Variation*, edited with Omer Gokcumen, Megan Dennis, and Ellen Leffler. 2024 – 2025.

MEETINGS, ORGANIZATION & OUTREACH

- August 2025 Outreach Organizer – *Breaking Bread: Exploring the Evolution of Amylase in Humans*. Evolution, Diversity, Art and Community, Festa Major de Gràcia & ESEB 2025, Barcelona, Spain. Organized and led a bilingual (English/Spanish) public outreach activity on human evolution and the amylase locus, selected as part of ESEB's outreach initiative. Co-organizer: Thomas Hitchcock.
- July 2025 Co-Chair, GRC Power Hour™ – Gordon Research Conference (GRC) on Evolutionary and Ecological Genomics: *Dynamics of Ecological and Evolutionary Change*, Lucca, Italy.
- July 2025 Chair for the Gordon Research Seminar (GRS) Ecological and Evolutionary Genomics: *Elucidating the Evolutionary Dynamics of Adaptation in Fluctuating Environments*, Lucca, Italy. Co-chair: Joaquin Nunez.
- May 2025 Moderator, Virtual Evolution 2025 Conference, Sessions: *Population Genetics Theory and Molecular Evolution*
- May 2025 Organization Committee for *Paving Pathways: A multi-panel symposium highlighting scientists in various post-graduate biomedical careers*, Buffalo, USA.
- 2025 – Present Organizer of “Talk Nerdy to Me”, a monthly event dedicated to public speaking and science communication, aimed at making research accessible to general audiences.
- July 2024 Organizer for Society for Molecular Biology and Evolution 2024 Symposium: *Deciphering the functional and adaptive effects of genomic structural variation*, Puerto Vallarta, Mexico.
- 2024 – Present Organizer, Postdoctoral Meetups, University at Buffalo, USA – Initiated and coordinated regular gatherings to build a supportive community, foster open communication and encourage interdisciplinary exchange.
- 2022 – Present Organizer for Genome Structure, Evolution and Anthropology Seminar Series, Buffalo Evolutionary and Anthropological Genomics Lab, University at Buffalo, USA.

SERVICE & MEMBERSHIPS

- Reviewer:** Molecular Biology and Evolution, Nature Communications, Genome Research, Genetics, The American Journal of Human Genetics.

Grant Reviewer: The Leakey Foundation, NordForsk (Nordic Council of Ministers).

Professional Training: GSA Journals Peer Review Training Program, Winter 2025.
eLife Early-Career Reviewers Pool, Spring 2025.

Memberships: Genetics Society of America (GSA), Society for Molecular Biology and Evolution (SMBE), Society for the Study of Evolution (SSE), European Society for Evolutionary Biology (ESEB), The Genetics Society (GS).

MEDIA HIGHLIGHTS & PRESS COVERAGE

2024 Yilmaz et al. Reconstruction of the human amylase locus reveals ancient duplications seeding modern-day variation. [Press release](#). Highlights: [NYT](#), [Discover](#), [CNN](#), [NBC](#). Highlighted in the [NIH Director's blog](#), as review highlight in [Cell Genomics](#), [PLOS SciComm](#) "Top Stories in Human Evolution of 2024", Leakey Foundation Podcast "Top Human Origins Discoveries of 2024".

PROGRAMMING LANGUAGES

Bash, Python, R, MySQL, HTML, Perl

Updated October 2025