ANNA MARIA LANGMÜLLER

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Total citations: 269 (Google Scholar), h-index: 8, i10-index: 8

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ACADEMIC POSITIONS

since 2024 AIAS-AUFF postdoctoral fellow, Aarhus Institute of Advanced Studies, Aarhus University
2021–2024 Marie Skłodowska-Curie postdoctoral fellow, Cornell University & University of Vienna
2018–2019 Visiting student researcher, Department of Computational Biology, Cornell University
2015–2021 Ph.D. Student, Institute of Population Genetics, University of Veterinary Medicine Vienna

EDUCATION

2021 **Ph.D. in Bioinformatics**
Institute of Population Genetics, University of Veterinary Medicine Vienna
Advisors: Prof. Christian Schlötterer, Prof. Andreas Futschik, Dr. Robert Kofler
Thesis title: The detection of temperature-dependent fitness effects with Evolve and Resequence experiments
Grade: pass with distinction

2015 **Master of Science**
Institute of Bioinformatics, Johannes Kepler University Linz
Advisors: Prof. Sepp Hochreiter, Dr. Günter Klambauer
Thesis title: Detecting copy number variations in the 1,000 Genomes Project data using *cn.MOPS*

2011 **Bachelor of Science**
Institute of Organismic Biology, University of Salzburg
Advisor: Prof. Robert Patzner
Thesis title: Hatchery detection of *salmo trutta fario* in the Forstaubach

PUBLICATIONS

Mentees underlined

1. **Langmüller AM***, Chandrasekher KA, Haller BC, Champer SE, Murdock CC, Messer PW* (2025): Gaussian Process emulation for exploring complex infectious disease models. *PLOS Comput. Biol.* 10.1371/journal.pcbi.1013849 (*corresponding authors)

2. **Langmüller AM*** (2025): Digest: Winter is coming: Overwintering selection and the cost of insecticide resistance in fruit flies. *Evolution.* 10.1093/evolut/qpaf256 (*corresponding author)

3. **Langmüller AM***, Haller BC, Nolte V, Schlötterer C* (2025): Purifying selection shapes the dynamics of P-element invasion in *Drosophila simulans* populations. *Genome Biol*. 10.1186/s13059-025-03688-2 (*corresponding authors)

4. **Langmüller AM***, Hermisson J, Murdock CC, Messer PW* (2024): Catching a wave: on the suitability of traveling-wave solutions in epidemiological modeling. *Theoretical Population Biology.* 10.1016/j.tpb.2024.12.004. (*corresponding authors)

5. **Langmüller AM**, Nolte V, Dolezal D, Schlötterer C (2023): The genomic distribution of transposable elements is driven by spatially variable purifying selection. *Nucleic Acids Research.* 10.1093/nar/gkad635

6. **Langmüller AM***, Champer J*, Lapinska S, Metzloff M, Xu Y, Xie L, Liu J, Clark AG, Messer PW (2022): Fitness effects of CRISPR endonucleases in *Drosophila melanogaster* populations. *eLife*. 10.7554/eLife.71809 (*equal contributions)

7. Mazo-Vargas A, **Langmüller AM**, Wilder A, van der Burg KRL, Lewis JJ, Messer PW, Zhan L, Martin A, Reed RD (2022): Deep cis-regulatory homology of the butterfly wing pattern ground plan. *Science*. 10.1126/science.abi9407

8. Yang E, Metzloff M, **Langmüller AM**, Clark AG, Messer PW, Champer J (2022): A homing suppression gene drive with multiplexed gRNAs maintains high drive conversion efficiency and avoids functional resistance alleles. *G3*. 10.1093/g3journal/jkac081

9. **Langmüller AM,** Dolezal M, Schlötterer C (2021): Fine mapping without phenotyping: Identification of selection targets in secondary Evolve and Resequence experiments. *Genome Biol. Evol*. 10.1093/gbe/evab154

10. **Langmüller AM**, Nolte V, Galagedara R, Poupardin R, Dolezal M, Schlötterer C (2020): Fitness effects for *Ace* insecticide resistance mutations are determined by ambient temperature. *BMC Biol*. 10.1186/s12915-020-00882-5

11. **Langmüller AM**, Schlötterer C (2020): Low concordance of short-term and long-term selection responses in experimental *Drosophila* populations. *Mol Ecol*. 10.1111/mec.15579

12. Liu J*, Champer J*, **Langmüller AM**, Liu C, Chung J, Reeves R, Luthra A, Lim Lee Y, Vaughn AH, Clark AG, Messer PW (2019): Maximum likelihood estimation of fitness components in experimental evolution. *Genetics*. 10.1534/genetics.118.301893 (*equal contributions)

13. Kofler R*, **Langmüller AM***, Nouhaud P, Otte KA, Schlötterer C (2016): Suitability of different mapping algorithms for genome-wide polymorphism scans with Pool-Seq data. *G3*. 10.1534/g3.116.034488 (*equal contributions)

SELECTED TALKS, CONFERENCES, WORKSHOPS

01/2026	Center for Quantitative Genetics and Genomics, Aarhus University (DK, invited)
08/2025	MBG Focus Talk Series, Aarhus University (DK, invited)
08/2025	ESEB2025 (ES)
08/2025	EPIC-DK: Evolution and Population Genetics in Denmark (DK)
06/2025	The Art of Leadership – Fewer Conflicts, More Results, Aarhus University (DK)
02/2025	BiRC Seminar Series, Aarhus University (DK, invited)
07/2024	KSMB-SMB Meeting, Konkuk University (KR)
04/2024	ProbGen Meeting, GMI Vienna (AT)
04/2024	PopGen Seminar Series, Veterinary University of Vienna (AT, invited)
07/2023	SMBE 2023 (IT)
04/2023	IEB Seminar Series, University of Münster (DE, invited)
11/2022	Mosquitoes and Vector-borne Disease Symposium, Weill Cornell (US)
08/2022	Institute of Population Genomics Seminar, University of Hamburg (DE, invited)
07/2022	Towards an Integrative View of Adaptation Program, KITP Santa Barbara (US, invited)
06/2022	PEQG22 (US)
06/2021	Evolution 2021 (online)
01/2021	Population Genetics Group Meeting (online)
03/2020	The Organisms and Its Environment, EMBO|EMBL Symposium (DE)
08/2017	Eco-Evolutionary Dynamics in Nature & the Lab Program, KITP Santa Barbara (US)

FELLOWSHIPS & AWARDS

08/2025 EPIC-DK conference best talk award
2024–2026 AIAS-AUFF research fellowship
2021–2024 Marie Skłodowska-Curie postdoctoral global fellowship
03/2020 EMBO|EMBL Symposium best poster award
2018–2019 Marshall Plan scholarship
08/2017 University of Vienna, travel award
2012–2013 JKU Linz scholarship for outstanding academic achievements

TEACHING

Lecturer
2019–2020 Statistic Planning of Experiments, University of Veterinary Medicine Vienna (AT)
2019–2020 Refresher in Applied Statistics, University of Veterinary Medicine Vienna (AT)

Guest lecturer
09/2025 Computational Thinking in Bioinformatics, Aarhus University (DK)
03/2025 Genetics & Evolution, Aarhus University (DK)
11/2023 Population Genetics, Cornell University (US)

Teaching assistant
2019–2020 Advanced R, University of Veterinary Medicine Vienna (AT)
2019 Introduction to Statistics and Biostatistics, University of Veterinary Medicine Vienna (AT)
2016–2017 Fundamentals of Programming, University of Veterinary Medicine Vienna (AT)
2014 Bioinformatics 2: Machine learning, Johannes Kepler University Linz (AT)

TRAINEES

Undergraduate researchers
2022–2025 Kiran Chandrasekher (Operations Research major, Cornell University, US)
2021–2022 Beliz Erdogmus (Statistics major, Cornell University, US)
2018–2019 Sandra Lapinska (Biometry & Statistics major, Cornell University, US)
2018–2019 Lin Xie (Biometry & Statistics major, Cornell University, US)

PROFESSIONAL ACTIVITIES

Organizer
since 2024 AIAS Grant Writing Group

Co-Organizer/Lecturer
10/2025 AIAS off-site seminar: “Generative AI: Practices & Impacts”, Aarhus University (DK)
04/2025 Festival of Research (Contribution), Aarhus University (DK)
07/2024 Symposium KSMB-SMB Meeting, Konkuk University (KR)
05/2024 Long Night of Research (Contribution), University of Vienna (AT)
12/2019 Experimental Evolution Workshop, University of Veterinary Medicine Vienna (AT)
11/2017 “Mind The Gap” Symposium, University of Veterinary Medicine Vienna (AT)
11/2017 Experimental Evolution Workshop, University of Veterinary Medicine Vienna (AT)
06/2017 Open Campus Day (Contribution), University of Veterinary Medicine Vienna (AT)
07/2016 Children University Day (Contribution), University of Veterinary Medicine Vienna (AT)

Student representative
2017–2018 Vienna Graduate School of Population Genetics (AT)

Ad hoc reviewer for scientific journals
Molecular Ecology, Molecular Biology & Evolution, Genome Biology & Evolution, PLOS Computational Biology