

Talia L. Karasov
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Positions & Education

2020-present	Assistant Professor, School of Biological Sciences, University of Utah.
2015-2020	Postdoctoral Fellow, Max Planck Institute for Developmental Biology, Tuebingen, Germany Advisor: Detlef Weigel
2009-2015	PhD in Genetics Genomics and Systems Biology, University of Chicago Advisor: Joy Bergelson
2008-2009	Research Assistant, Stanford University Advisor: Dmitri Petrov
2004-2008	BSc in Biological Sciences, Stanford University

Awards and Honours

2023	Mario Capecchi Endowed Chair in Genetics and Biology
2023	Nominee for David and Lucile Packard fellowship (one of two nominees for the University of Utah; result not yet known)
2017-2020	Human Frontier Science Program (HFSP) Postdoctoral Fellowship
2018	Best Talk Award, Pathobiome INRA conference, Ajaccio Corsica
2015-2016	EMBO Long-term Research Fellowship
2015	Best Thesis Award for the Program in Genetics Genomics & Systems Biology, University of Chicago
2013-2015	NSF Doctoral Dissertation Improvement Grant
2013	Hind's Research Award, University of Chicago
2009-2011	Fellow of the Genetics and Regulation Training Grant, University of Chicago

Peer-reviewed Publications/Publications currently under review¹⁻¹⁸

1. Backman, T., Latorre, S. M., Eads, L., Som, S., Belnap, D., Manuel, A. M., Burbano, H. A. & Karasov, T. L. A weaponized phage suppresses competitors in historical and modern metapopulations of pathogenic bacteria. *bioRxiv* 2023.04.17.536465 (2023) doi:10.1101/2023.04.17.536465.
2. Duque-Jaramillo, A., Ulmer, N., Alseekh, S., Bezrukov, I., Fernie, A. R., Skirycz, A., Karasov, T. L. & Weigel, D. The genetic and physiological basis of *Arabidopsis thaliana* tolerance to *Pseudomonas viridisflava*. *New Phytol.* (2023) doi:10.1111/nph.19241.

3. Karasov, T. L. & Lundberg, D. S. The changing influence of host genetics on the leaf fungal microbiome throughout plant development. *PLoS biology* vol. 20 e3001748 (2022).
4. Lundberg, D. S., de Pedro Jové, R., Ayutthaya, P. P. N., Karasov, T. L., Shalev, O., Poersch, K., Ding, W., Bollmann-Giolai, A., Bezrukov, I. & Weigel, D. Contrasting patterns of microbial dominance in the *Arabidopsis thaliana* phyllosphere. *Proceedings of the National Academy of Sciences* **119**, e2211881119 (2022).
5. Karasov, T. L., Neumann, M., Shirsekar, G., Monroe, G., PATHODOPSIS Team, Weigel, D. & Schwab, R. Drought selection on *Arabidopsis* populations and their microbiomes. *bioRxiv* 2022.04.08.487684 (2022) doi:10.1101/2022.04.08.487684.
6. Shalev, O., Karasov, T. L., Lundberg, D. S., Ashkenazy, H., Pramod Na Ayutthaya, P. & Weigel, D. Commensal *Pseudomonas* strains facilitate protective response against pathogens in the host plant. *Nature Ecology & Evolution* 1–14 (2022).
7. Machado, H. E., Bergland, A. O., Taylor, R., Tilk, S., Behrman, E., Dyer, K., Fabian, D. K., Flatt, T., González, J., Karasov, T. L., Kim, B., Kozeretska, I., Lazzaro, B. P., Merritt, T. J., Pool, J. E., O'Brien, K., Rajpurohit, S., Roy, P. R., Schaeffer, S. W., Serga, S., Schmidt, P. & Petrov, D. A. Broad geographic sampling reveals the shared basis and environmental correlates of seasonal adaptation in *Drosophila*. *Elife* **10**, (2021).
8. Regaldo, J., Lundberg, D. S., Deusch, O., Kersten, S., Karasov, T., Poersch, K., Shirsekar, G. & Weigel, D. Combining whole-genome shotgun sequencing and rRNA gene amplicon analyses to improve detection of microbe--microbe interaction networks in plant leaves. *ISME J.* 1–15 (2020).
9. Karasov, T. L., Shirsekar, G., Schwab, R. & Weigel, D. What natural variation can teach us about resistance durability. *Curr. Opin. Plant Biol.* **56**, 89–98 (2020).
10. Karasov, T. L., Neumann, M., Duque-Jaramillo, A., Kersten, S., Bezrukov, I., Schröppel, B., Symeonidi, E., Lundberg, D. S., Regaldo, J., Shirsekar, G., Bergelson, J. & Weigel, D. The relationship between microbial population size and disease in the *Arabidopsis thaliana* phyllosphere. *bioRxiv* 828814 (2020) doi:10.1101/828814.
11. Karasov, T. L., Almario, J., Friedemann, C., Ding, W., Giolai, M., Heavens, D., Kersten, S., Lundberg, D. S., Neumann, M., Regaldo, J., Neher, R. A., Kemen, E. & Weigel, D. *Arabidopsis thaliana* and *Pseudomonas* Pathogens Exhibit Stable Associations over Evolutionary Timescales. *Cell Host Microbe* **24**, 168–179.e4 (2018).
12. Karasov, T. L., Chae, E., Herman, J. J. & Bergelson, J. Mechanisms to Mitigate the Trade-Off between Growth and Defense. *Plant Cell* **29**, 666–680 (2017).
13. Karasov, T. L., Barrett, L., Hershberg, R. & Bergelson, J. Similar levels of gene content variation observed for *Pseudomonas syringae* populations extracted from single and multiple host species. *PLoS One* **12**, e0184195 (2017).
14. Vetter, M., Karasov, T. L. & Bergelson, J. Differentiation between MAMP Triggered Defenses in *Arabidopsis thaliana*. *PLoS Genet.* **12**, e1006068 (2016).
15. Karasov, T. L., Kniskern, J. M., Gao, L., DeYoung, B. J., Ding, J., Dubiella, U., Lastra, R. O., Nallu, S., Roux, F., Innes, R. W., Barrett, L. G., Hudson, R. R. & Bergelson, J. The long-term maintenance of a resistance polymorphism through diffuse interactions. *Nature* **512**, 436–440 (2014).
16. Karasov, T. L., Horton, M. W. & Bergelson, J. Genomic variability as a driver of plant-pathogen coevolution? *Curr. Opin. Plant Biol.* **18**, 24–30 (2014).
17. Karasov, T., Messer, P. W. & Petrov, D. A. Evidence that adaptation in *Drosophila* is not limited by mutation at single sites. *PLoS Genet.* **6**, e1000924 (2010).
18. González, J., Karasov, T. L., Messer, P. W. & Petrov, D. A. Genome-wide patterns of adaptation to temperate environments associated with transposable elements in *Drosophila*. *PLoS Genet.* **6**, e1000905 (2010).

*These researchers contributed equally

Invited or Selected Seminars

- 2024 Department of Plant and Microbial Biology seminar series (invited) — UC Berkeley (CA)
 Department of Ecology and Evolutionary Biology seminar series (invited) — UC Berkeley (CA)
 Department of Biology, informal seminar (invited) — Stanford University (CA)
 Workshop on Plant Biota, hosted by the Max Planck Society and Bayer (invited) — Germany
 Conference on Ancient Biomolecules of Plants, Animals and Microbes (invited) — Wellcome Sanger Institute Hinxton, UK
- 2023 International Conference on Plant Pathology (invited) — Lyon, France
 Department of Botany and Plant Sciences seminar series (invited) — UC Riverside (CA)
 Department of Molecular Biology seminar series (invited) — University of Chicago (IL)
- 2022 Changing Microbiomes Symposium (invited) — Penn. State University (PA)
 Department of Botany and Plant Sciences seminar series (invited) — UC Riverside (CA)
 Department of Biology seminar series (invited) — NYU (New York)
 Department of Plant Biology seminar series (invited) — UC Davis (CA)
 Ecology seminar series (invited) — Utah State University (UT)
 Integrative Biology seminar series (invited) — University of Texas at Austin (TX)
- 2021 Carnegie Institute seminar series (invited) — Stanford (CA)
 Center for the Origins of Life Seminar series (invited) — University College London (UK)
 Nature conference “Harnessing the Plant Microbiome” (invited) — Davis (CA)
 International Conference for Arabidopsis research (ICAR) (invited) — Washington (WA)
 Phyllosphere conference (invited) — Davis (CA)*
 Plant and Microbiology seminar series (invited) — UC Berkeley (CA)
 Department of Biology seminar series (invited) — Utah State University (UT)
 Pathology seminar series (invited) — University of Utah (UT)
 Mathematical biology seminar series (invited) — University of Utah (UT)
- 2020 *Pseudomonas syringae* conference (invited) — Ajureyri Iceland*
- 2019 Wellcome Trust meeting for Plant Genomes in a Changing Environment (invited) — Hinxton England
 Molecular Plant-Microbe Interactions meeting (invited) — Glasgow Scotland
- 2018 Pathobiome conference. Ajaccio Corsica
 Gordon Lark Keynote Speaker at the University of Utah SBS Retreat (invited) — University of Utah (UT)
- 2016 EMBL conference “New Model Systems for Linking Evolution and Ecology.” — Heidelberg Germany

2012 Society for the Study of Evolution (SSE) meeting – Ottawa Canada.

*Cancelled due to COVID-19

Mentorship

Aubrey Hawks (Univ. of Utah graduate student, MCEB): 09/2020-present
Natalia Backman (Univ. of Utah graduate student, MCEB): 04/2021-present
Lauren Eads (Univ. of Utah graduate student, MCEB): 04/2023-present
Efthymia Symeonidi (Univ. of Utah postdoc, PhD MPI Tuebingen): 10/2020-present
Madelyn Allen (Univ. of Utah PhD student, MCEB): 12/2023-present
Cannon Fehrenbach (Univ. of Utah undergraduate): 05/2021-present
Allison Perkins (Univ. of Utah undergraduate): 04/2023-present
Annika Kloepper (Univ. of Utah undergraduate): 09/2023-present
Sarita Som (Univ. of Utah undergraduate): 08/2021-present
Yunus Ashtijou (Univ. of Utah undergraduate): 08/2022-01/2023
Olivia Pratt (Univ. of Utah undergraduate): 09/2021-05/2022
Christopher Bradley Nelson (Univ. of Utah undergraduate): 04/2021-07/2022
Erianna Basgall (Univ. of Utah rotating graduate student, MB): 01/2021-04/2021
Emmanuel Ngwoke (Univ. of Utah rotating graduate student, MCEB): 08/2021-010/2021
Lorenzo Mena (Univ. of Utah rotating graduate student, MB): 01/2023-04/2023

Reviewer

eLife
PLoS Genetics
PLoS Computational Biology
Proceedings of the National Academy of Sciences (PNAS)
International Society for Microbial Ecology (ISME)
New Phytologist
Microbiology
Evolutionary Applications
Evolution
Genome Biology & Evolution

Funding (funded, submitted or in preparation)

Funded: University of Utah Wilkes Seed Grant (Direct Costs: \$10,000, 05/2023)
 NIH R35 MIRA Easy Stage Investigator: “Identifying limitations on microbial host jumps” (Direct Costs: \$1,250,000 8/2023).

Not funded:

NIH R35 MIRA Easy Stage Investigator (submitted 10/2021)
NERC-NSF joint proposal (submitted 12/2021)
NSF Plant-Biotic Interactions: “The Function of Specialized Metabolites in Plant-Pathogen Host Specificity”. Direct Costs: \$320,168 (submitted 03/2021)

NSF Plant-Biotic Interactions: “The Function of Specialized Metabolites in Plant-Pathogen Host Specificity”. Direct Costs: \$320,168 (submitted 10/2022)

NASA STTR 2021 Phase I Solicitation: “Bioprimer of Plant Microbiome to Promote Crop Health and Growth”. Direct Costs: \$61,500 (submitted with nou Systems 01/2021, not funded)

Internal Research Instrumentation Fund for Viasys. Direct Costs: \$22,112 (submitted 01/2021, not funded)

David and Lucile Packard Foundation Fellowship. Direct Costs: \$875,000 (4/2023, not funded; one of two candidates nominated from the University of Utah)