

Linton Freund

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Education

PHD | 2019-2025 | University of California Riverside

- Program: Genetics, Genomics, and Bioinformatics
 - Member of Dr. Emma Aronson's Lab
 - Advanced to Candidacy February 2022
 - Awarded Chancellor's Distinguished Fellowship (2019)

MS | 2019 | California State University, Long Beach

- Major: Biology (GPA 3.7)
 - Student in the Bioinformatics Lab (Dr. Renaud Berlemont)
 - Related coursework: bioinformatics, ecology, computer modeling
 - Thesis: Insights into the Structure and Function of the Gut Metagenome in Cartilaginous Fishes

| 2017 | Moorpark College

- Major: Biology (GPA: 3.69)
 - Related coursework: microbiology, general and organic chemistry, biology, protein purification

B.A. | 2014 | University of California, Santa Barbara

- Major: Psychology and Brain Sciences (Major GPA 3.7, GPA 3.4)
 - Related coursework: Cognitive psychology, learning and memory, biopsychology

Publications

Aronson, E. L., **Freund, H. L.**, and Maltz, M. R. 2023. Microbiology of the Critical Zone. Critical Zone and Ecosystem Dynamics, White, T. and A. Provenza, Eds. Springer-Verlag. *in press*.

Freund, L. (2023). Amplicon Sequencing Workflow (v1.0.1). Zenodo. <https://doi.org/10.5281/zenodo.8264886>

Biddle, T.A., Yisrael, K., Drover, R., Li, Q., Maltz, M.R., Topacio, T.M., Yu J., Del Castillo, D., Gonzales, D., **Freund, H.L.**, Swenson, M.P., Shapiro, M.L., Botthoff, J.K., Aronson, E., Cocker, D.R. 3rd, Lo D.D. Aerosolized aqueous dust extracts collected near a drying lake trigger acute neutrophilic pulmonary inflammation reminiscent of microbial innate immune ligands. *Sci Total Environ.* 2023 Feb 1;858(Pt 3):159882. doi: 10.1016/j.scitotenv.2022.159882. Epub 2022 Nov 2. PMID: 36334668.

Maltz, M.R.; Carey, C.J; **Freund, H.L.**; Botthoff, J.; Stajich, J.E.; Hart, S.C.; Aarons S.; Aciego, S.; Blakowski, M.; Cullen Dove, N.D.; Barnes, M; Pombubpa N.; Aronson, E. Landscape topography and regional drought alters dust microbiomes in the Sierra Nevada of California. *Frontiers in Microbiology* 2022 13:856454.

Freund H.L., Maltz M.R., Swenson, M.P., Topacio, T.M., Montellano, V.A., Porter, W., Aronson, E. Microbiome interactions and their ecological implications at the Salton Sea. *California Agriculture* 2022 76: 1.

Jackson, D.; Maltz, M.R.; **Freund, H.L.**; Borneman, J.; Aronson, E. Environment and Diet Influence the Bacterial Microbiome of *Ambigolimax valentianus*, an Invasive Slug in California. *Insects* 2021 12: 7.

Nguyen, S. T. C., **Freund, H. L.**, Kasanjian, J., and Berlemont, R. 2018. Function, distribution, and annotation of characterized cellulases, xylanases, and chitinases from CAZy. *Applied Microbiology and Biotechnology* 102: 4.

Awards

2023	Best Poster; UC Riverside Genetics, Genomics, and Bioinformatics Annual Symposium (2023)
2023	UC Riverside College of Natural Sciences' Dean's Fellowship Fund (\$6,200)
2022	National Microbiome Data Collaborative Champion
2021	University of Washington Summer Institute of Statistical Genetics Scholarship (\$900)
2021	Dr. Janet M. Boyce Memorial Endowed Scholarship Fund for Women Majoring in the Sciences (\$2,000)
2020	Best Flash-Talk at the UC Riverside Genetics, Genomics, and Bioinformatics Annual Symposium 2020
2020	SKC West Inc. Equipment Grant (\$1,605.95)
2020	Honorable Mention for the Zymo-UCR Microbiome Fellowship
2019	Chancellor's Distinguished Fellowship Award (UC Riverside)
2018	Dr. Vern Eveland Memorial Award (\$2,500)
2018	Linda Lee Warren Graham Endowed Scholarship (\$2,000)

Presentations

2023	9 th Annual Southern California Microbiome Symposium
2022	BREATHE Annual Workshop (co-presenter: Talyssa Topacio)
2020, 2021, 2022, 2023	UC Riverside Genetics, Genomics, and Bioinformatics Annual Symposium
2019	California State University Annual Biotechnology Symposium
2017, 2018	Southern California Branch of the American Society for Microbiology (SCASM) Student Colloquium
2017, 2018	California State University Long Beach Graduate Research Conference

Research Experience

2019-2024	Graduate Student Researcher, Environmental Microbiology Lab Microbiology & Plant Pathology Department, University of California, Riverside
<i>Supervisor:</i>	Dr. Emma Aronson
<i>Thesis:</i>	The Taxonomic and Functional Microbial Diversity of the Sub-Ecosystems within the Salton Sea in Southern California
<i>Tasks:</i>	Collect and prepare environmental such as soil, dust, and water samples for DNA extraction Extract and quantify DNA extracts for amplicon and shotgun metagenome sequencing Process and analyze amplicon and shotgun sequencing metagenomic data with bioinformatic tools and custom Bash scripts Perform statistical analyses on the sequence data and geochemistry data using custom R scripts and R packages
2017-2019	Graduate Student Researcher, Bioinformatics Lab Biology Department, California State University Long Beach
<i>Supervisor:</i>	Dr. Renaud Berlemont
<i>Thesis:</i>	Insights into the Structure and Function of the Gut Microbiome in Cartilaginous Fishes
<i>Tasks:</i>	Raw metagenome sequence data processing via bioinformatics tools and custom Bash scripts Perform statistical analyses on sequence data via custom R scripts and R packages Review current research on enzymatic polysaccharide deconstruction by microbes in the gut of vertebrates Assist Principal Investigator in writing, editing and reviewing lab publications

2016-2017	Contract Biologist, The Butterfly Project Biology Department, Moorpark College
<i>Supervisor:</i>	Dr. Jana Johnson
<i>Research:</i>	Population maintenance and propagation of the Lange's Metalmark Butterfly and the Palos Verdes Blue Butterfly
<i>Tasks:</i>	Release pupae and capture gravid foundresses in field Conduct and supervise butterfly feedings Document oviposition and create maps of egg location Build habitats for larvae, pupae and butterflies
2016	Student Intern; Biotechnology Laboratory Biotechnology Department, Moorpark College
<i>Supervisor:</i>	Professor Subhash Karkare
<i>Research:</i>	Optimization of Enzyme-Linked Immunosorbent Assay (i.e., ELISA) for the Biotechnology Certification Program curriculum
<i>Tasks:</i>	Prepare samples of cytotoxic T-lymphocyte associated protein 4 (i.e., sCTLA-4) for analysis Reduce duration of ELISA and determine necessary sample dilutions Research the purpose and technique behind ELISA Qualitative analysis of assay results for inclusion in the protocol
2014	Lead Clinical Research Coordinator; LY Pharmacy Inc.
<i>Supervisor:</i>	Luna Yojay, PharmD.
<i>Research:</i>	Direct Phase 2 and Phase 3 clinical trials testing pharmaceuticals targeting chronic kidney disease and associated complications/illnesses
<i>Tasks:</i>	Oversight of administering of pharmaceuticals to participants Monitor vital signs of patients after drug administration Record and manage data utilizing Medidata Rave (electronic-data capture) Meet with Clinical Research Associates to discuss data and protocol
2013-2014	Research Assistant; Computational Cognitive Neuroscience Laboratory Department of Psychology and Brain Sciences, University of California Santa Barbara
<i>Supervisor:</i>	Dr. F. Gregory Ashby
<i>Research:</i>	Utilization of computational modeling to understand the cortical substrates involved in cognitive skills such as category learning
<i>Tasks:</i>	Collect and organize data across experiments via Microsoft Excel Assist graduate students in data analysis of computer-based experiments Conduct experiment targeting procedural and declarative learning systems Learn the fundamentals behind experimental design and statistical analyses

Skills

Computing: Bash, R, Git, Microsoft Office, Python

Wet Lab: DNA extraction, DNA extraction quantification, PCR, vacuum filtration, microbial culturing

Extracurriculars

2023-Present Food Not Bombs, Riverside Chapter

- Member

2020-2023 UC Riverside Genetics, Genomics, and Bioinformatics Student Association

- Vice President 2022-2023
- Vice President 2020-2021

- Student Representative Alternate 2019-2020
- 2020-2023 UC Riverside Queer Graduate Student Association
 - President 2022-2023
 - Vice President 2021-2022
- 2021-2022 Student Researchers Union
 - Bargaining Representative Alternate 2022
 - Biosciences Organizer 2021-2022
- 2018-2019 California State University Long Beach Biology Graduate Student Association
 - Board Member 2018-2019
 - Vice President 2021-2022