

NIH Office of Dietary Supplements (ODS) 2022–2023 Seminar Series

Diet and the Microbiome: An Ecological and Evolutionary Perspective

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Wednesday, February 8, 2023 | 11 a.m. – 12 p.m. ET

Join the [Webinar](#)

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Aspen Reese is an Assistant Professor in the University of California of San Diego's (UCSD's) Department of Ecology, Behavior and Evolution. Her lab investigates how variation in the microbiota in response to environmental change can impact host phenotype and aid in adaptation or acclimation. This research is an extension of her foundational training in microbiology, evolution, and ecology. She holds a B.S. in Biology from Yale University and a Ph.D. in Ecology from Duke University. Dr. Reese's graduate research tackled how microbial communities respond to ecological change both in the external environment (soil) and in the gut microbiota of mammals. This work produced novel insights into the mechanisms of microbial recovery from antibiotic treatment and how the host controls microbiota composition. As part of this work, she developed new methods for measuring gut environmental conditions in vivo and ex vivo. From 2017 to 2020 Dr. Reese was a Junior Fellow in the Harvard Society of Fellows, where she extended her ecological analyses of the microbiota into evolutionary frameworks. She studied the microbiota of nonmodel organisms and of model organisms in nonmodel settings, asking how the microbiome contributes to host fitness changes under animal domestication and how microbial diversity in our closest relatives, chimpanzees, differs from that of humans. She continues to explore these topics with her lab at UCSD, which is broadly interested in understanding gut microbiota plasticity and its implications for host phenotype and health.

Recent Publications

1. Carmody, R. N., Sarkar, A., and Reese, A. T. Gut microbiota through an evolutionary lens. *Science*, Apr 30;372(6541):462–463. PMID: 33926939 DOI: [10.1126/science.abf0590](https://doi.org/10.1126/science.abf0590).
2. Reese, A. T., Chadiadeh, K. S., Diggins, C. E., Schell, L. D. et al. 2021. Effects of domestication on the gut microbiota parallel those of human industrialization. *Elife*, Mar 23;10:e60197. PMID: 33755015 PMCID: [PMC7987347](https://pubmed.ncbi.nlm.nih.gov/PMC7987347/) DOI: [10.7554/eLife.60197](https://doi.org/10.7554/eLife.60197).
3. Reese, A.T., and Carmody, R. N. Thinking outside the cereal box: noncarbohydrate routes for dietary manipulation of the gut microbiota. *Applied and Environmental Microbiology*, 2019 May 2;85(10): e02246-18. PMID: 30504210 PMCID: PMC6498178 DOI: 10.1128/AEM.02246-18.



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