Taylor Szasz Green

Education

PhD, Computational Biology, Mississippi State University, 2021 – Present
Dissertation Advisors: Amy Dapper, PhD, Jean-Francois Gout, PhD, Federico Hoffman, PhD, Mark Welch, PhD.

Postgraduate Diploma, The University of Edinburgh, 2018
Concentration: Global Health and Infectious Disease

B.S., Biomedical Engineering, Mississippi State University, 2015

Research Experience

PhD Research, 2021 – Present
Mississippi State University Department of Biological Sciences
Advisor: Amy Dapper, PhD
Utilized computational biology tools to understand the evolution of meiotic recombination genes across vertebrate clades. Identified genome-wide patterns of genetic variation within American alligators. Investigated comparative genomics of sex determination mechanism within reptiles.

Research Technician II, 2015 – 2019
Washington University School of Medicine, Department of Pediatrics, Infectious Diseases Division
Supervisor: Dr. Celeste Morley
Performed *in vivo*, *in vitro*, and microscopy experiments designed to elucidate the effect of mutations in actin-binding genes on pneumococcal disease outcomes.

Undergraduate Research Assistant, 2013 – 2015
Mississippi State University Department of Agricultural and Biological Engineering
Advisor: Raj Prabhu, PhD
Investigated the potential cytotoxic effects of ligand-conjugated nanoparticles on human cell lines.

Teaching Experience

Graduate Teaching Assistant, Mississippi State University, 2021 – Present
Courses taught: Human Anatomy, Biology I, General Microbiology, Avian Diversity, Animal Diversity

Fellowships and Awards

Preparing Future Faculty Program (PFF), 2024-2025
Mississippi State University Center for Teaching and Learning

NSF Graduate Research Fellowships Program (GRFP), 2022
Honorable Mention

UW Summer Institute in Statistical Genetics (SISG), 2022

Scholarship Recipient

Funding

Graduate Student Travel Support Program (GSTS), 2023
College of Arts and Life Sciences
Mississippi State University

Graduate Student and Postdoc Travel Supplement, 2023
The Society for the Study of Evolution (SSE)

Microscopy Microgrant, 2016
Washington University Center for Cellular Imaging (WUCCI)

Publications

Szasz-Green, T., Shores, K., Vanga, V., Zacharias, L., Lawton, A., Dapper, A. Comparative phylogenetics reveal clade-specific drivers of recombination rate evolution across vertebrates. *Molecular Biology and Evolution*. (*In revision*)

Walker, E.C., Javati, S., Todd, E.M., Matlam, J., Lin, X., Bryant, M., Krone, E., Ramani, R., **Green, T.P.**, Anaya, E.P., Zhou, J.Y., Alexander, K.A., Tong, R.S., Yuasi, L., Boluarte, S., Yang, F., Greenberg, L., Nerbonne, J.M., Greenberg, M.J., Clemens, R.A., Philips, J.A., Wilson, L.D., Halabi, C.M., DeBosch, B.J., Blyth, C.C., Druley, T.E., Kazura, J., Pomat, W.S., Morley, S.C. (2024) Novel coenzyme Q6 genetic variant increases susceptibility to pneumococcal disease. *Nature Immunology*

Anaya, E.P., Todd, E.M., Lin, X., **Szasz, T.P.,** Morley, S.C. (2021) Novel mouse model reveals that serine phosphorylation of L-plastin is essential for effective splenic clearance of pneumococcus. *The Journal of Immunology* 206(9), 2135-2145.

Todd, E.M., Ramani, R., **Szasz, T.P.**, Morley, S.C. (2019) Inhaled GM-CSF in neonatal mice provides durable protection against bacterial pneumonia. *Science Advances* 5(8) eaax3387.

Joshi, H., Todd, B.E., **Szasz, T.**, Anaya, E., Morley, S. (2019) Inflammasome activation in macrophages is regulated by actin-bundling protein L-plastin. *The Journal of Immunology* 202 (1 Supplement), 117.14-117.14

McFarland, M., **Szasz, T.**, Zhou, J., Motley, K., Sivapalan, J., Isaacson-Schmid, M., Todd, E., Hogan, P., Fritz, S., Burnham, C., Hoffmann, S., Morley, S. (2017) Colonization with 19F and other pneumococcal conjugate vaccine serotypes in children in St. Louis, Missouri, USA. *Vaccine*, 35(34), pp.4389-4395.

Stewart-Hutchinson, P., **Szasz, T.**, Jaeger, E.R., Onken, M.D., Cooper, J.A., Morley, S. C. (2017). Technical Advance: New in vitro method for assaying the migration of primary B cells using an endothelial monolayer as substrate. *Journal of Leukocyte Biology*, 102, 3, pp. 941-948.

Todd, E., Zhou, J., **Szasz, T.**, Deady, L., D'Angelo, J., Cheung, M., Kim, A. and Morley, S. (2016). Alveolar macrophage development in mice requires L-plastin for cellular localization in alveoli. *Blood*, 128(24), pp.2785-2796.

Zhou, J., **Szasz, T.**, Stewart-Hutchinson, P., Sivapalan, J., Todd, E., Deady, L., Cooper, J., Onken, M. and Morley, S. (2016). L-Plastin promotes podosome longevity and supports macrophage motility. *Molecular Immunology*, 78, pp.79-88.

Morley, S., Todd, E., Zhou, J., Deady, L., D'Angelo, J., **Szasz, T.** (2016). Defective monocyte motility disrupts alveolar macrophage development in mice deficient for L-plastin. *The Journal of Immunology* 196 (1 Supplement) 119.9.

Presentations

Biology Graduate Student Seminar, 2025
Patterns of genetic diversity within American alligator genomes. Starkville, MS. (Talk)

Southeastern Population Ecology and Evolutionary Genetics Annual Meeting, 2024
Population genetics of the American alligator. Clemson, SC. (Talk)

Evolution Meeting, 2023
Evolution of the meiotic recombination pathway in birds. Albuquerque, NM. (Talk)

Southeastern Population Ecology and Evolutionary Genetics Annual Meeting, 2022
Evolution of the meiotic recombination pathway in birds. Eatonton, GA. (Talk)

Service

Summer Camp Instructor, 2023 – Present
Classes: Robotics, Intro to Data Science
The Mississippi School for Math and Science (MSMS), Columbus, MS

Public Outreach, 2022 – Present
MSU Science Night at the Museums
Mississippi State University, Starkville, MS

Undergraduate Student Research Mentor, 2021 – Present
Mentees: Katherynne Shores, Vineel Vanga, Luke Zacharias
Mississippi State University, Starkville, MS

Middle/High School Student Outreach, 2020 – Present
Activities: Middle School National Science Bowl Regional Competitions, Applicant Review Day
The Mississippi School for Math and Science (MSMS), Columbus, MS

Public Programs Volunteer, 2016 – 2019
Programs: Scout sleepover camps, polymer science, life science labs, computer programming, video game design, engineering design
St. Louis Science Center, St. Louis, MO