

KATIE M. SAUND

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RESEARCH & EDUCATION

PhD candidate in Microbiology & Immunology University of Michigan, Ann Arbor, MI 2015 – 2020 *expected*

- **Advisor:** Evan Snitkin, Ph.D.
- **Thesis project:** Statistical & bioinformatic approaches to identify variants in whole genome sequencing (WGS) data associated with pathogenic phenotypes and patient outcomes during *Clostridium difficile* infection.
- **Topics:** computational biology, bacterial genomics, bioinformatics, infectious disease, epidemiology, evolution.
- **Awards:** ASM Travel Award (2019), UM Rackham Conference Travel Grant & Professional Development Award (2019), NIH Predoctoral Genetics Training Grant (2016 – 2018), & UM Maas Fellowship (2015).
- **Software:**
 - hogwash. R package. Three bacterial GWAS methods. github.com/katiesaund/hogwash
 - prewas. R package. Data preprocessing for bacterial GWAS. github.com/Snitkin-Lab-Umich/prewas/
- **Papers:**
 - Published: Mau, Eckley, Bergin, Saund, Villano, Vendrov, Snitkin, Young, Yung. mSphere. 2019.
 - Under review & preprint available:
 - Saund, Rao, Young, Snitkin. github.com/katiesaund/clinical_cdiffficile_trehalose_variants
 - Bassis, Bullock, Sack, Saund, ... Bell. github.com/cbassis/MotherDaughter_Vaginal_Microbiota.study
 - In preparation:
 - Saund*, Lapp*, Thiede*, Snitkin. PreWAS: data preprocessing for bacterial GWAS. *Equal contribution.
 - Saund & Snitkin. Hogwash: Three bacterial GWAS methods.
- **External talks:** American Society for Microbiology Microbe in San Francisco, CA (2019) & Systems Biology & Antibacterial Resistance Program in La Jolla, CA (2018).

Research rotation with Benjamin Segal, MD at University of Michigan 2015

- **Project:** Screened effect of potential therapeutic drug on progression of experimental autoimmune encephalomyelitis (a mouse model of multiple sclerosis). Topics: autoimmunity, T-reg, T-cells, & immunology.

Research Assistant & Scientist 1 (Promoted 2014) Seattle Children's Research Institute, Seattle, WA. 2012 – 2015

- **Advisor:** Courtney Crane, Ph.D. (U. of Washington & Ben Towne Center for Childhood Cancer Research)
- **Project:** Characterization of the role of lactate dehydrogenase in the pediatric glioma microenvironment.
- **Topics:** cancer immunotherapy, solid tumors, immunology, cancer metabolism, NK cell & macrophage biology.
- **Paper:** Haberthur, Brennan, Hoglund, ..., & Crane. Cancer Biology & Therapy. 2016.

California Institute of Technology (Caltech) B.S. Biology, Pasadena, CA 2008 – 2012

- **Leadership:** Co-President for Class of 2012. Coordinated commencement & obtained grant for class trip.
- **Awards:** Everhart Service (2012), Teruggi Memorial (2011), Studenski Memorial (2010), & Shepard (2009).
- **Research:** SantaLucia Lab: 16s rRNA alignment algorithm improvement (Wayne State University; 2009) & Manary Lab: food & clinical interventions for pediatric malnutrition (Washington University; 2010, 2011).

COMPUTATIONAL AND LABORATORY SKILLS

Computational R, bash, package development, high performance cluster (HPC) computing, version control (git), data visualization, markdown, batch scheduling (PBS, SLURM), unit testing, linux/mac/PC, Adobe Illustrator.

Bioinformatic tools blast, constraints, iqtree, ksnp, mafft, pilon, prank, provean, roary, sift, snpeff, treewas, raxml.

Laboratory Anaerobic bacterial culture, co-immunoprecipitation of proteins, CRISPR/Cas9 genome editing, cryostat, flow cytometry, immune cell isolation, lentiviral transduction, mammalian cell culture, molecular biology, mouse handling, microbial techniques, plasmid construction, robotic pipetting systems, qPCR.

INVESTING, MENTORSHIP, & SERVICE AT UNIVERSITY OF MICHIGAN

Volunteer Data Scientist for Statistics in the Community 2019 – Present

- Statistical analysis & insights from Myeloproliferative Neoplasms Research Foundation member surveys.

Student Advisor at Wolverine Venture Fund 2018 – Present

- Performed due diligence on Series A/B healthcare & technology companies to inform investment decisions.

Venture Capital Investment Competition 2018 – 2019

- Winning team member in UM Ross School of Business competition & participant at Regional Competition.

Undergraduate Honors Thesis Research Mentor 2018 – Present

- Weekly supervision of thesis research for undergraduate microbiology student.

Professional Development Diversity, Equity, & Inclusion (DEI) Certificate Program 2019

- Training in intercultural communication, anti-racism & bystander intervention