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.
- **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. Open source R package. Three bacterial GWAS methods. http://github.com/katiesaund/hogwash
  - prewas. R package; *currently under development*. Data preprocessing for bacterial GWAS.
- **Papers:**
  - Mau, Eckley, Bergin, Saund, Villano, Vendrov, Snitkin, Young, Yung. mSphere. 2019.
  - Saund, Rao, Young, Snitkin. Genetic determinants of trehalose utilization are not associated with severe *Clostridium difficile* infection. Submitted. 2019.
  - Bassis, Bullock, Sack, Saund, Pirani, Snitkin, Alaniz, Quint, Young, Bell. Submitted & preprint posted. 2019.
  - *In preparation:* Saund*, Lapp*, Thiede*, Snitkin. PreWAS: data preprocessing of multiallelic variants, overlapping genes, and ancestral states for more informative bacterial GWAS. *Equal contribution.
  - *In preparation:* Saund & Snitkin. Hogwash: Three genome-wide association study methods to identify genetic loci correlated with bacterial phenotypes.
- **External talks:**
  - Saund & Snitkin. Talk & poster: American Society for Microbiology Microbe. San Francisco, CA. 2019
  - Saund & Snitkin. Flash talk: Systems Biology & Antibacterial Resistance Program. 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-cell subsets, & immunology.

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

- **Advisor:** Courtney Crane, Ph.D.
- **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 $6,000 class trip grant.
- **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: 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

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

Student Advisor at Wolverine Venture Fund University of Michigan 2018 – Present

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

Venture Capital Investment Competition University of Michigan 2018 – 2019

- Member of winning team in UM Ross School of Business competition & competitor in Central Regional Competition at University of Texas at Austin McCombs School of Business.

Undergraduate Honors Thesis Research Mentor University of Michigan 2018-Present

- Weekly supervision of thesis research for undergraduate microbiology student.

Professional Development Diversity, Equity, & Inclusion (DEI) Certificate Program University of Michigan 2019-2020

- Training in intercultural communication, microaggressions, bystander intervention, & unconscious bias.