Noah Shane Helton

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Education

The College of Wooster August 2016 – May 2020
Bachelor of Arts in Biochemistry and Molecular Biology
Graduated *magna cum laude* **GPA:** 3.77/4.00
Relevant Courses: Techniques in Biochemistry, Computational Genomics, Instrumental Analysis, Immunology, Organic Chemistry (Full Year), Biophysical Chemistry, Calculus (Full year), Calculus Physics (Full Year), and Metabolism

Professional Experience

December 2017 – August 2019
Research Assistant • The College of Wooster • Principal Investigator: Dr. Mark Snider

- Planned and executed experiments independently to better understand nicotinic acid degradation, specifically designing alternative strategies to bypass previous project difficulties.
- Used Nuclear Magnetic Resonance (NMR) and Liquid Chromatography-Mass spectrometry (LC-MS) to attempt and elucidate molecular structures in the nicotinic acid catabolic pathway.
- Worked with a lab group and presented updates on research periodically during meetings.
- Served as the leading lab teaching assistant in the Buckeye Women in Science & Engineering Research Week-long summer camp (BWISER) for 8th-grade girls, which allowed young women to be introduced to the field of scientific research.

May 2018 – July 2018
Research Assistant • Shandong University IVF Lab • Principal Investigator: Dr. Zi-Jiang Chen

- Assisted graduate students and doctors by conducting genetic and histological research on two infertility diseases including polycystic ovary syndrome (PCOS) and premature ovarian failure (POF).
- Worked with both *Mus musculus* and KGN human cell lines to answer questions relating to POF and PCOS.
- Helped edit and review scientific research papers across a wide range of subjects before submission to journal publications.

August 2019 – April 2020
Senior Independent Study Thesis • The College of Wooster

- Focused on elucidating the genetic determinants of nicotinic acid catabolism in the soil-dwelling bacteria *Bacillus niacini* using an mRNA-sequencing experiment; computational analysis of the dataset was done by myself using R and Galaxy.
- Also designed and initiated a complex Gibson assembly cloning experiment to provide further experimental evidence on the cluster of genes identified through RNA-seq.
- Isolated proteins through column chromatography techniques and performed enzyme assays using High Pressure Liquid Chromatography (HPLC).
- Thesis successfully defended in April 2020 through an oral examination.

September 2020 – Present
Research Technician • Cleveland Clinic Lerner Research Institute • Principal Investigator: Dr. Richard Padgett

- Researched the connection between minor spliceosome mutations and the disease Microcephalic osteodysplastic primordial dwarfism type 1 (MOPD1)
- Analyzed RNA-seq data for differential alternative splicing in brain organoids as a result of mutations in the minor spliceosome's snRNA

Community Engagement

January 2017 – May 2019
Health Coach • Wooster Community Care Network

- Attended weekly lectures on different topics in the medical field led by medical professionals from Wooster Community Hospital.
- Aided Wooster community residents as a health supervisor to monitor patient vitals and educate patients on their medicines and diagnoses; worked with doctors and nurses to communicate patient's complications and concerns weekly.

August 2017 – April 2020
Peer Tutor • The College of Wooster • Learning Center

- Tutored several students in introductory chemistry and biology courses.
- Displayed effective scientific communication skills

August 2018 – December 2019
Teaching Assistant • The College of Wooster • Biochemistry & Molecular Biology Department

- Assisted in planning and teaching two upper-level biochemistry courses: Genes and Genomes and Techniques in Biochemistry.

July 2019 – Present
Volunteer • Greater Cleveland Food Bank • Cleveland, Ohio

January 2017 – March 2020
Volunteer • Holly House Inc. • Wooster, Ohio

Publications and Presentations

- Noah S. Helton, Zachary Harvey, Kaeli Zoretich, Abigail Daniel, Dean Fraga, and Mark J. Snider; Determination of the nicotinic acid catabolic gene cluster in Bacillus niacini DSM2923. Manuscript in progress–to be submitted to The Journal of Biological Chemistry.
- Mark J. Snider, Scott W. Perkins, Ryan G. Campbell, Noah S. Helton, and Lauren Rajakovich; Critical role for substrate ionization in the mechanism of 6-hydroxynicotate 3-monooxygenase. Gordon Research Conference on Enzymes, Coenzymes and Metabolic Pathways, Waterville Valley, NH, July 2019.

Awards and Honors

- Awarded the Henry J. Copeland Fund for Independent Study Grant, a competitive internal grant designated for senior research at the College of Wooster. The purpose of this grant was to fund an RNA-seq experiment to determine differential gene expression in *B. niacini* in response to nicotinic acid. - $2920.50
- The Vivien Chan Prize in Interdisciplinary Sciences
- The William Byron Ross Memorial Prize in Chemistry
- Melissa Schultz I.S. Research Prize in Sustainability and the Environment
- Dean's Scholarship
- Honors on Independent Study Thesis
- Departmental Honors in Biochemistry and Molecular Biology at the College of Wooster

Skills & Qualifications

Lab Skills: NMR spectroscopy, HPLC, Liquid Chromatography Mass Spectrometry (LCMS), Fourier Transform-infrared spectroscopy (FT-IR), Fast Protein Liquid Chromatography (FPLC), traditional cloning techniques, Gibson assembly, DNA and RNA isolation techniques, protein purification by column chromatography, and standard sterile microbiology techniques.

Computational Skills: Data science in Python and R programming languages, familiar with Javascript, HTML, CSS web development, proficient in MacVector, Galaxy, and other web-based protein and genetic programs, RNA-seq analysis pipelines.

Professional Skills: Project planning, teaching, strong interpersonal communication skills and group work, organizational skills, and effective scientific communication skills.