

# Shannon Medlock

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## Education:

University of Alaska Anchorage	Began August 2019
Graduate Master's student, Biological Sciences Department	Expected Graduation December 2023
University of Alaska Anchorage	2018
B.S., Biological Sciences, Cum Laude	
University of Alaska Anchorage	2001
A.A., General Studies	

## Research Experience:

### *Researcher*

**Southcentral Foundation Research Department** 2022-present  
**Principal Investigator, Dr. Denise Dillard**

I am the lead researcher for the “Home Blood Pressure Monitoring Intervention for Self-Management of High Blood Pressure Among Alaska Native People”. I am responsible for collecting data from study participants, leading meetings, planning/coordinating research activities, leading a team of researchers and program coordinators, purchasing supplies, and creating reports for funders and the Institutional Review Board. I also lead the project “Diet and Genes Modifying Antiplatelet Drug Response in ANAI People”. In addition to the activities listed above I also coordinate a collaborative team across departments at Southcentral Foundation for which I trained team members in recruitment procedures and operations. Additionally, I perform lab processing of blood samples and collaborate with and report to partners at the University of Washington. I also contribute to other projects at Southcentral Foundation including “The Role of Diet in the Health of Alaska Native Children” which examines how diet interacts with the CPT1A arctic variant gene and the project “Optimizing Firearm Suicide Prevention in Healthcare” that aims to determine how health care systems can interact with patients in firearm suicide prevention.

### *Research collaboration – Aberts squirrels fecal microbiota analysis*

**G2p2pop Research Coordination Network** 2019-2021  
**Principal Investigator, Dr. C. Loren Buck**  
**Dr. Greg Caporaso and Dr. Victor Zhang**

### **The Pathogen and Microbiome Institute, Northern Arizona University (NAU)**

This project was established through a lab exchange funded by the g2p2pop Research Coordination Network. The lab exchange was between the lab of Dr. Khrystynne Duddleston at University of Alaska Anchorage (UAA) and the lab of Dr. Greg Caparaso at Northern Arizona University (NAU). The project was to incorporate fecal microbial community data from Aberts squirrels with ecological and

physiological data collected by Victor Zhang for his PhD dissertation. I used my experience in fecal microbial extraction to extract microbial DNA from Aberts fecal samples. The resulting DNA was then sent back to NAU for sequencing. In January 2020 I attended a bioinformatics workshop in Bethesda, Maryland to learn how to process the data using QIIME2. I then spent a week in Flagstaff, Arizona at NAU working in Dr. Caporaso's lab to begin the analysis of the microbial sequencing data. Final analysis for this project and writing of the results will be a collaboration between myself and Victor Zhang with completion in spring 2022.

***Graduate Research – Gut and milk microbiotas influence on offspring in arctic ground squirrels***

**Department of Biological Sciences, University of Alaska Anchorage**

2019-present

**Dr. Khrystyne Duddlestone, advisor**

A continuation of the project begun as an undergraduate student. I am investigating the influence of maternal dietary protein content on the gut microbiotas of pregnant and lactating arctic ground squirrels and its influence on offspring gut microbiota development and growth. This project entails experimental design and sample collection that required creation of sampling protocols. All sample collection is complete for the project and I am in the process of sequencing of microbial DNA along with nutritional analysis of milk samples. Estimated completion of graduate studies in Spring 2022.

***Undergraduate Research – Squirrel gut and milk microbiota and its influence on pup microbiota***

**Department of Biological Sciences, University of Alaska Anchorage**

2017-2018

**Dr. Khrystyne Duddlestone, advisor**

Lead researcher on investigating the relationship between maternal dietary protein consumption and its effects on milk and fecal microbiota of pregnant and lactating arctic ground squirrels and its influence on the fecal microbiota of the pups. This study is an original idea and design that I was able to implement in coordination with another research project involving pregnant and lactating arctic ground squirrels in the Duddlestone lab. Continuation of this work will be the basis for my studies as a graduate student.

***Undergraduate Research - Influence of captivity on gut microbiota of wild caught arctic ground squirrels***

**Department of Biological Sciences, University of Alaska Anchorage**

2017-2018

**Dr. Khrystyne Duddlestone, advisor**

Independent research project investigating the change in arctic ground squirrel gut microbiota when moving from a wild to a captive diet. I was trained in DNA extraction techniques, DNA sequencing protocols, and bioinformatics processing.

***Student Research Assistant – Urea Nitrogen Salvage Project***

**Department of Biological Sciences, University of Alaska Anchorage**

2016-2017

**Dr. Khrystyne Duddlestone, advisor**

Performance of animal husbandry duties and assisting with animal euthanasia and sample collection for a study on urea nitrogen salvage in arctic ground squirrels under the mentorship of graduate student Karen Carlson. Assisted in laboratory techniques of microbial dilutions and plating, microbial isolation, anaerobic sample collection, and microbial DNA extractions.

**Oral Presentations:**

**Medlock, S.,** Duddleston, K. (2020). *Influence of maternal dietary protein and gut microbiota on offspring gut microbiota and growth in arctic ground squirrels*. Alaska Native Science and Engineering Program, Weekly Meeting Presenter. Anchorage, Alaska.

**Medlock, S.,** Duddleston, K. (2020). *The Duddleston lab explores gut microbes in arctic ground squirrels*. Invited Presenter. The Pathogen and Microbiome Institute at Northern Arizona University Seminar. Flagstaff, Arizona.

**Medlock, S.** Duddleston, K. (2019). *Influence of maternal dietary protein and gut microbiota on offspring gut microbiota and growth*. American Society for Microbiology Alaska Branch Meeting. Anchorage, Alaska.

## **Poster Presentations:**

**Medlock, S.,** Duddleston, K. (2022). *Dietary protein effects on maternal microbiotas and pup growth in arctic ground squirrels*. Poster Presentation. Beneficial Microbes Conference. Madison, Wisconsin.

**Medlock, S.,** Duddleston, K. (2022). *Maternal Diet Influences Offspring Development but not Gut Microbiota in Arctic Ground*. Poster Presentation. American Society for Microbiology Microbe Conference. Washington D.C.

**Medlock, S.,** Duddleston, K. (2021). *Influence of maternal dietary protein on maternal gut microbiota and on offspring gut microbiota and growth*. Poster Presentation. American Indian Science and Engineering Society Annual Conference. Phoenix, Arizona.

**Medlock, S.,** Duddleston, K. (2020). *Influence of maternal dietary protein and gut microbiota on offspring gut microbiota and growth*. Poster Presentation. Alaska IDeA Networks for Biomedical Research Excellence Virtual Annual Retreat. Alaska.

**Medlock, S.,** Duddleston, K. (2020). *Influence of maternal dietary protein and gut microbiota on offspring gut microbiota and growth*. Poster Presentation, abstract accepted. American Society for Microbiology Microbe Conference, virtual.

**Medlock, S.,** Duddleston, K. (2020). *Gut and milk microbiotas influence on offspring in arctic ground squirrels*. Poster Presentation. QIIME2 Workshop. Bethesda, Maryland.

**Medlock, S.,** Duddleston, K. (2019). *Gut and milk microbiotas influence on offspring in arctic ground squirrels*. Poster Presentation. Alaska IDeA Networks for Biomedical Research Excellence Annual Retreat. Talkeetna, Alaska.

**Medlock, S.,** Duddleston, K. (2018). *Relative influence of maternal milk and gut microbiotas on offspring gut microbial communities in arctic ground squirrels*. Poster Presentation. Annual Biomedical Research Conference for Minority Students (ABRCMS) Indianapolis, Indiana.

**Medlock, S.,** Duddleston, K. (2018). *Relative influence of maternal milk and gut microbiotas on offspring gut microbial communities in arctic ground squirrels*. Poster Presentation. Alaska IDeA Networks for Biomedical Research Excellence Annual Retreat. Talkeetna, Alaska.

**Medlock, S.,** Duddleston, K. (2018). *Relative influence of maternal milk and gut microbiotas on offspring gut microbial communities in arctic ground squirrels*. Poster Presentation. National IDeA Symposium for Biomedical Research Excellence. Washington DC.

**Medlock, S.,** Duddleston, K. (2017). *Relative influence of maternal milk and gut microbiotas on offspring gut microbial communities in arctic ground squirrels*. Poster Presentation. NIH IDeA Western Regional Conference. Jackson Hole, Wyoming.

**Medlock, S.,** Duddleston, K. (2017). *Relative influence of maternal milk and gut microbiotas on offspring gut microbial communities in arctic ground squirrels*. Poster Presentation. Alaska IDeA Networks for Biomedical Research Excellence Annual Retreat. Denali, Alaska.

### **Memberships:**

- American Society for Microbiology
- American Society for Microbiology Alaska Student Chapter
- Research Coordination Network

### **Awards and Scholarships:**

#### **Travel Awards:**

- BLAST Travel Award, AKINBRE, January 2020
- ABRCMS Travel Award, November 2018
- INBRE Student Travel Award, June 2018
- INBRE Student Travel Award, October 2017

#### **Merit Awards:**

- Best presentation by a graduate student, American Society for Microbiology Alaska Branch Meeting, 2019
- Outstanding Undergraduate Research Award, University of Alaska Anchorage, 2018
- Best Poster Presentation by an undergraduate at the Regional INBRE Retreat Jacksonhole WY, 2017
- Best Poster Presentation by an undergraduate at the Alaska INBRE Retreat, 2017
- National Collegiate Mathematics Award, 2000
- National Deans list, 2000

#### **Scholarships:**

- Mike Ardaw Scholarship, 2018
- Alice Easley Scholarship, 2017
- UA Scholars Program Scholarship, 1999

#### **Fellowships:**

- Sloan SIGP Fellowship 2019-2023
- Alaska INBRE Graduate Research Assistantship 2021-2022
- Alaska INBRE Graduate Research Assistantship 2020-2021
- Alaska INBRE Graduate Research Assistantship 2019-2020
- American Society for Microbiology Undergraduate Research Fellowship, 2018
- Alaska INBRE Undergraduate Research Fellowship 2018
- Alaska INBRE Undergraduate Research Fellowship 2017

**Training Experiences:**

- FAES Academic Programs at NIH BIOF 089, Microbiome Bioinformatics with QIIME2, January 8-10, 2020
- Certified in BP-ICAN research protocol to perform blood pressure readings

**Leadership Experience:**

- Laboratory Technician Duddleston Lab, January - August 2019
- Research project design and implementation, 2017-2018
- Boom Town Derby Dames – Bout Day Manager, 2015-2016
- Math Club President Mat-Su Community College, 2000-2001

**Teaching experience:**

- Trainer and mentor for the Duddleston Lab vivarium team; trained all team members in animal care and handling protocols and techniques 2019
- Trained lab members in laboratory protocols and techniques as a laboratory technician 2019
- Coordinator for Duddleston lab participation in UAA STEM Day 2018 and 2019
- Math tutor for homeschool middle and high schoolers, 2005-2008
- Math tutor for college math students, 2000-2003