

Adriane M. McDonald

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EDUCATION**University of California, Santa Barbara**

Goleta, CA

Ecology, Evolution, and Marine Biology Ph.D. Student

September 2019 – Present

Spelman College

Atlanta, GA

Bachelor of Science, Biology *Magna Cum Laude*

August 2015- May 2019

RESEARCH EXPERIENCE**Spelman College— Department of Biology**

Atlanta, GA

Undergraduate Researcher

August 2017-May 2019

Principal Investigator: Dr. Dongfang Wang

Research Project: *Analyzing Promoter 5' Deletions on InvINH1 during Seed Development*

- Generated 5' promoter deletion constructs for InvINH1 promoter to analyze activity and determine what part of the promoter is required for gene expression.
- **Techniques:** SnapGene, media preparation, buffer preparation, plasmid miniprep, polymerase chain reaction, restriction digestion, ligation, E. coli transformation, agarose gel electrophoresis

Woods Hole Oceanographic Institution – Department of Biology

Woods Hole, MA

Summer Student Fellow

May 2018-August 2018

Principal Investigator: Dr. Neel Aluru

Research Project: *Exposure to PCB153 affects Circadian Rhythm Behavior and Gene Expression in Zebrafish*

- Dosed zebrafish embryos at 4 hours post fertilization with PCB153 for various lengths of time to determine the necessary experimental window of exposure.
- Conducted various behavior assays using Noldus DanioVision to determine the exposure range that is necessary to disrupt circadian rhythm behavior in zebrafish.
- Used qPCR to confirm RNA sequencing data and quantify the expression of circadian rhythm genes in zebrafish when exposed to PCB153 for 5 days post fertilization.
- **Techniques:** Data analysis using R, qPCR, cDNA synthesis, Zebrafish breeding, Circadian behavior assays, DanioVision

University of California, Los Angeles — Department of Ecology and Evolutionary Biology

Los Angeles, CA

Summer Research Intern

June 2017-August 2017

Principal Investigators: Dr. Paul Barber and Dr. Peggy Fong

Research Project: *Urchins Are Important Herbivores and Mediate Positive Effects of Sediment on Algal Turfs*

- Created mechanisms and methods for manipulation of sea urchin presence as well as sediment depth on algal turf.
- A mesocosm experiment was conducted in order to exclude the effect of all environmental factors, except sediment type, on algal turf growth.
- Conducted urchin surveys, herbivorous fish surveys, and coral head surveys in order to characterize the research site.
- **Techniques:** JMP software, herbivorous fish surveys, data analysis, urchin surveys, Microsoft Excel, AAUS Scientific Diving,

Spelman College – Department of Biology

Undergraduate Student Researcher

Principal Investigator: Dr. Dongfang Wang

Research Project: *The Effect of Germline Mutations on the MSH2 Gene in Hereditary Nonpolyposis Colorectal Cancer*

- Worked on a project determining the relationship between mutation G704S and a person's risk of developing Hereditary Nonpolyposis Colorectal Cancer.
- Isolated and digested three different samples to determine which contained a defect single nucleotide polymorphism in the MSH2 insert, a DNA mismatch repair mechanism gene.
- Measured mutation rate in three yeast strains and analyzed cell cycle profile in each.
- **Techniques:** plasmid miniprep, digestion, polymerase chain reaction, yeast transformation, FOA assay, flow cytometry

North Carolina State University- Department of Biochemistry

Raleigh, NC

Research Assistant

July 2013

Principal Investigator: Dr. Bob Rose

Research Project: *The Green Light for Biology*

- Introduced mutations into the Green Fluorescent Protein (GFP) to modify the color it fluoresces to yellow.
- Analyzed the mutated GFP to observe if it had the ability to tag other proteins in order to visualize their function in the cell.
- **Techniques:** pipetting, PCR reaction, agar plate preparation, ligation, transformation

LEADERSHIP & DEVELOPMENT

Priceless Ambassadors

Atlanta, GA

President

May 2017-Present

- Serve as the head of Priceless Ambassadors, a social justice organization created to raise awareness of human trafficking.

LINCS Program

Atlanta, GA

Program Scholar

April 2017-Present

- Nominated to be one of fifteen scholars at Spelman College to prepare for a career in research.
- This community focuses on the growth and enrichment of its scholars through mentorship activities and professional development opportunities.

Women of Excellence in Leadership Series

Atlanta, GA

Scholar

December 2017-April 2018

- Selected out of a competitive pool of applicants to engage and participate in a personal development series that is designed to train students for leadership roles in the global community.

American Public Health Association Climate Justice Summit

Atlanta, GA

Participant and Volunteer

November 2017

- Selected to participate in discussion on the threat of climate change to human health.

Spelman Honors Program Student Association

Atlanta, GA

Social Chair

September 2015-May 2018

- Plan and implement programs centering academics, self-care, community service, and social justice for the students of the Ethel Waddell Githii Honors Program.

GRL-PWR

Director of Public Relations

- Create and distribute promotional materials to the general public with the intent of publicizing GRL-PWR events.

Spelman Student Government Association

Atlanta, GA

Leadership and Civic Engagement Committee

September 2016-May 2017

- Assist the Directors of Leadership and Civic Engagement to implement programs for the students in the Atlanta University Center to become more involved in the surrounding West End community.

WORK EXPERIENCE

National Student Leadership Conference

Evanston, IL

Site Assistant

June 2016-August 2016

- Facilitator for Global Public Health, Cross Cultural Business, and Biotechnology American University courses.
- Assisted in day-to-day operations of the National Student Leadership Conference at Northwestern University.

Rising Readers

Charlotte, NC

Elective Facilitator

June 2015-August 2015

- Tutored ESL (English as a Second Language) students in Science, Art, and Health & Wellness to ESL.
- Developed weekly lessons plans that incorporate the weekly theme.

PRESENTATIONS

McDonald A., Wang D. Analyzing Promoter 5' Deletions on InvINH1 during Seed Development. Poster Presented at: Annual Biomedical Research Conference for Minority Students; 2018 November 15; Indianapolis, Indiana.

McDonald A., Aluru N., Exposure to PCB153 affects Circadian Rhythm Behavior and Gene Expression in Zebrafish. Poster Presented at: WHOI Summer Undergraduate Research Forum; 2018 August 8; Woods Hole, Massachusetts.

McDonald A., Wang D. Analyzing Promoter 5' Deletions on InvINH1 during Seed Development. Poster Presented at: Spelman College Research Day; 2018 April 20; Atlanta, Georgia.

McDonald A., Bideau S., Gasca M. Urchins Are Important Herbivores and Mediate Positive Effects of Sediment on Algal Turfs. Oral Presented at: Spelman College Research Day; 2018 April 20; Atlanta, Georgia.

McDonald A., Bideau S., Gasca M. Urchins Are Important Herbivores and Mediate Positive Effects of Sediment on Algal Turfs. Poster Presented at: Ocean Sciences Meeting; 2018 February 14; Portland, Oregon.

McDonald A., Bideau S., Gasca M. Urchins Are Important Herbivores and Mediate Positive Effects of Sediment on Algal Turfs. Oral Presented at: University of California, Los Angeles Summer Research Symposium; 2017 August 18; Los Angeles, CA.

McDonald A., Lawrence A., Williams A. The Effect of Germline Mutations on the MSH2 Gene in Hereditary Nonpolyposis Colorectal Cancer. Poster session presented at: Spelman College Research Day; 2017 April 21; Atlanta, GA.

McDonald A., Ojo P. The Green Light for Biology. Oral Presented at: North Carolina School of Science and Mathematics Summer Research Symposium; 2013 August 1; Durham, NC.

AWARDS & HONORS

Phi Beta Kappa	April 2019
Annual Biomedical Research Conference for Minority Students Travel Award	November 2018
Golden Key International Honour Society	October 2017
NASA Georgia Space Grant Consortium-LINCS Scholarship	September 2017
Alpha Epsilon Delta National Pre-Health Professional Honor Society	May 2017
Beta Beta Beta National Biological Honor Society	April 2017
National Society of Collegiate Scholars	March 2017
Ethel Waddell Githii Honors Program – Spelman College	August 2015
Student of Distinction Scholar	August 2015
Spelman College Dean’s List	Spring 2016, Fall 2016, Spring 2017, Fall 2017, Spring 2018