Meredith G. Johnson
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EDUCATION:

Arizona State University, Tempe, AZ, July 2018 - present
Ph.D. in Biology, degree expected in 2023, Specialization: Insect Physiology

Dickinson College, Carlisle, PA, 2014 - 2018 GPA: 3.81 / 4.0
B.S. in Biochemistry and Molecular Biology with honors
B.S. in Neuroscience
Minor in Chemistry

RESEARCH ACCOMPLISHMENTS:

Fulbright study/research award alternate to Panama February 2018

- Proposal to conduct research at The Smithsonian Tropical Research Institute in Panama under the mentorship of Dr. William Wcislo.

Dickinson College Honors in Biochemistry and Molecular Biology 2016 - 2018

- Probing the tetrameric structure of *Leishmania major* Pteridine Reductase (PTR1) with point mutations and interface-derived peptides.

Publication July 2017

- Wachsmuth LM, **Johnson MG**, Gavenonis J (2017) Essential multimeric enzymes in kinetoplastid parasites: A host of potentially druggable protein-protein interactions. PLoS Negl Trop Dis11(6): e0005720. https://doi.org/10.1371/journal.pntd.0005720

Barry M. Goldwater Scholarship Honorable Mention March 2017

LANGUAGE SKILLS

- Studied for eight years and completed immersion in Spanish to become proficient.
- Researched at the University of Puerto Rico, a primarily Spanish-speaking environment.

RESEARCH PRESENTATIONS:

JOHNSON, M; HUANG, W.; WACHSMUTH, L. M.; NGUYEN, L. P.; GAVENONIS, J. "Probing the tetrameric structure of *Leishmania major* Pteridine Reductase (PTR1) with point mutations and interface-derived peptides." April 6, 2018. National Conference for Undergraduate Research. The University of Central Oklahoma. Presentation.

RESEARCH POSTERS:

JOHNSON, M; HUANG, W.; WACHSMUTH, L. M.; NGUYEN, L. P.; GAVENONIS, J. "Probing the tetrameric structure of *Leishmania major* Pteridine Reductase (PTR1) with point mutations

and interface-derived peptides." March 19, 2018. American Chemical Society annual meeting. New Orleans, LA. Poster

JOHNSON, M; LOUBRIEL GRAJALES, D; NIEDZIALEK, O; PEREZ TORRES, M; MELENDEZ, A; ALEMAN RIOS, J; MOSIER, A; ABRAMSON, C; GIRAY, T; BARTHELL, J; GONZALEZ, VH; AGOSTO RIVERA, J. "A comparative analysis of the circadian rhythms of specialist and generalist bees visiting Convolvulaceae flowers." January 5, 2017. The Society for Integrative and Comparative Biology 2017 annual meeting. New Orleans, LA. Poster.

LOUBRIEL GRAJALES, D; **JOHNSON, M**; NIEDZIALEK, O; PEREZ TORRES, M; MELENDEZ, A; ALEMAN RIOS, J; MOSIER, A; ABRAMSON, C; GIRAY, T; BARTHELL, J; GONZALEZ, V; AGOSTO RIVERA, J. "Analysis of Convolvulaceae Circadian Rhythm and Systropha Visitation Rates". The Society for Integrative and Comparative Biology 2017 annual meeting. January 6, 2017. New Orleans, LA. Poster.

KAPELSOHN, K.; **JOHNSON, M.**; HONG, J. "Trauma: An interim analysis of trial efficacy in a pilot study investigating the effects of music therapy in ventilated ICU patients". Lehigh Valley Health Network Summer Research Scholar annual poster presentations. July 31, 2015. Allentown, PA. Poster.

RESEARCH EXPERIENCE

Arizona State University Research Assistant — August 2018 - 2020

- Funded by the United States Department of Agriculture (USDA) to investigate the effects of a potentially harmful fungicide (Pristine) on honey bee hive health.
- Measured metabolic rate, mitochondrial function, and total body protein content of individual honey bees. Assessed whole hive health of 50 hives every two weeks.

NSF Partnerships for International Research and Education (PIRE) — June - August 2017
University of Puerto Rico, Río Piedras Department of Neurobiology, San Juan, PR
National Institute for Agricultural Research, Avignon, Provence-Alpes-Côte d'Azur, France

- Researched neural plasticity of *Apis mellifera* decision-making and foraging behavior.
- Conducted work versus reward and color preference experiments.
- Dissected *Apis mellifera* brains for examination, gene expression, and protein extraction.

NSF Research Experience for Undergraduates (REU) — June - July 2016
University of Central Oklahoma, Edmond, OK
Namik Kemal University, Tekirdağ, Turkey

- Conducted field research with *Xylocopa, Megachile,* and *Apis mellifera* subspecies.
- Studied circadian rhythm of *Systropha* bees and morning glory flowers.
- Quantified and analyzed locomotor activity of bees in TriKinetics monitoring technology.
- Dissected *Apis mellifera* brains, extracted RNA, and utilized gel electrophoresis.

Dickinson College Student Faculty Research August 2016 - Present
Department of Chemistry

- Generated PTR1 point mutants based on computational analysis of structural data.
- Expressed and purified recombinant native and mutant enzymes in *E. coli*.
- Compared native and mutant enzyme activity using kinetics and cross-linking.

Lehigh Valley Health Network Research Scholar Program June - August 2015
Department of Surgery, Allentown, PA

- Studied the effect of music therapy on sedation requirement in ventilated ICU patients.
- Identified candidates for the research, collected data from patient charts, and analyzed data in addition to shadowing various medical professionals in their clinics.

AWARDS AND RECOGNITION:

Dickinson College Amy Snow '93 Prize 2017

- "Awarded annually to a rising junior or senior who has a zest for life and learning, a strong commitment to Dickinson and the community, and a demonstrated belief in the goodness of all people"

Dickinson College Forney P. George Scholarship 2017

- Assists students with passion for humanistic medicine and research.

Dickinson College Dean's List 2015 - 2018

- Awarded for earning a minimum 3.70 GPA average for a semester.

LEADERSHIP EXPERIENCE:

Peer Tutor August 2016 - 2018
Dickinson College: Organic Chemistry, General Chemistry, and Psychology

- Tutored students in sessions covering course content, homework, and study techniques.

Cell Biology Teaching Assistant January - May 2018
Dickinson College: Department of Biology

- Assisted in a weekly lab, led exam review sessions, and prepared data for experiments.

Brain and Behavior Teaching Assistant January - May 2017
Dickinson College: Department of Neuroscience

Volunteer Optometric Services to Humanity, Cap Haïtien, Haiti 2015 and 2016

- Provided administrative support and data collection for optometric mission trips to Haiti.

President of Dickinson College Pre Health Society August 2016 - May 2018

- Organized meetings and guest lecturers to support student interest in healthcare.

Vice President of Dickinson College Neuroscience Club August 2016 - May 2018

- Organized meetings, events, and volunteer opportunities to promote campus and community interest in current neurological findings.

SELECTED FIELD, LABORATORY, AND COMPUTER SKILLS

Biology

- Locating, capturing, marking, and identifying native bees and honey bees.
- Mounting, labeling, and preserving specimens.
- Honey bee brain and gut dissection.
- Honey bee keeping.
- Maintaining bee health in the laboratory.
- Maintaining and crossing *Drosophila* lines.

Insect Physiology

- Respirometry.
- Using and repairing Sable Systems technology.

Biochemistry

- Site-directed mutagenesis, PCR, and cloning bacteria.
- Protein expression and purification in *E. coli* (affinity chromatography and SDS-PAGE).
- Enzyme activity, kinetics, and cross-linking assays.
- DNA and RNA extraction and analysis.

Microscopy

- Maintenance of cell cultures for fixation on a slide.
- Giemsa, Cresyl Violet, and pertinent fluorescent stains.
- Viewing: fluorescent, phase contrast, dark field, bright field, and polarization microscopy.
- Proximity Ligation Assay (PLA).