

MARINA R. HANNA

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Education

Fisk University

Fisk-Vanderbilt Masters-to-PhD Bridge Program
Master of Art in Biology

(August, 2020)

St. Lawrence University

McNair Scholars Program
Bachelor of Science in Biology

August, 2017

Research Experience

Dopaminergic Neuron Gene Expression, Dr. Brian Nelms, August 2018 - Present

Supported by NSF CREST BioSS Center at Fisk University

- Identified the genetic targets of the FKH-8 transcription factor in *C. elegans* dopamine neurons via RNA-Seq for differential expression characterization between WT and FKH-8 mutated worms
- Isolated DNA from whole-worm preparations and genotyped via PCR to curate multiple worm strains
- Trained and mentored undergraduates on lab maintenance/safety, solution preparation, and protocols

Neurodegenerative Research, Dr. Joseph Erlichman, Spring, 2015 - Spring, 2017

- Treated oxidative stress in the EAE mouse model of Multiple Sclerosis with cerium oxide nanoparticles.
- Trained mice on rotarod and wire-hanging apparatuses and quantified increased motor performance
- Used *ex vivo* approaches to treat ischemic mouse brain slices with cerium oxide nanoparticles. Image analysis of cell death using caspase-3 revealed cell sparing in treated slices compared to control slices

Endocrine research, Dr. Alexander Schreiber, Summer, 2015 - Fall, 2016

Supported by TRIO and McNair Scholars Grant - Summer Research Internship, St. Lawrence University

- Compared *Xenopus laevis* thymus gland regression of spontaneous metamorphosis and induced-metamorphosis with dexamethasone and thyroid hormone-3 using immunohistochemistry and confocal microscopy
- Trained and mentored McNair Scholars on lab maintenance and protocols

Behavioral Neuroscience Research, Dr. William DeCoteau, Fall, 2015

- Used a video-enabled behavioral apparatus with AnyMaze tracking software to blindly test object novelty discrimination in rats with pre-limbic cortex and infra limbic cortex lesions versus rats administered a saline placebo

Conferences & Presentations

(**M. Hanna**, C. Roach, J. Quinde, B. Nelms, “Identifying Genetic Targets of the Transcription Factor FKH-8 in *C. elegans* Dopamine Neurons” poster presented at ABRCMS, November, 2019.*)

M. Hanna, C. Roach, J. Quinde, B. Nelms, “Identifying Genetic Targets of the Transcription Factor FKH-8 in *C. elegans*” poster presented at GSA International *C. elegans* Conference, June, 2019.* **and** Vanderbilt University Program in Developmental Biology Annual Retreat, September, 2019.

J. Buckleitner, T. Devine, **M. Hanna**, J.M. Mroczka, T. Sloand, G. Wetmore, B. DeCoteau and J. Erlichman, “The Effects of Nanoceria on Cognitive Decline and Free Radical Production with Aging in Mice,” poster presented at St. Lawrence University Festival of Science, May, 2017.

*Abstract published

M. Monhart, **M. Hanna**, S. Foote, A.M. Schreiber, “Thymus Gland Remodeling During Natural and Thyroid Hormone/Dexamethasone-Induced *Xenopus laevis* Metamorphosis,” poster presented at Society for Integrative and Comparative Biology Annual Conference, January, 2016.*

M. Hanna, A.M. Schreiber, “Changes in Thymus Gland During *Xenopus laevis* Natural Metamorphosis,” oral presentation at Comparative Physiology in the Adirondacks Meeting, October, 2015.

S. Miller, B. Carlson, A. Kowalczyk, **M. Hanna**, W.E. DeCoteau, “Effects of Pre-Limbic Cortex Lesions on Detecting Object Novelty,” poster presented at Society for Neuroscience Conference, October, 2015.*

M. Hanna, S. Yee, A.M. Schreiber, “Effects of Thyroid Hormone and Dexamethasone on *Xenopus laevis* Thymus Gland Development,” oral presentation at University at Buffalo Undergraduate Research Conference, July, 2015.

S. Yee, M. Monhart, **M. Hanna**, J. Quinde, E. Mauch, B. Fateye, A.M. Schreiber, “Effects of Thyroid Hormone and Dexamethasone on Thymus Development During *Xenopus laevis* Metamorphosis,” poster presented at North American Society for Comparative Endocrinology 3rd Biennial Conference, June, 2015 **and** at St. Lawrence University Honors Reception, September, 2015.*

Honors and Awards

Neuroscience of Fear Study Abroad Program: Full Scholarship, St. Lawrence University	2017
Ronald E. McNair Post-Baccalaureate Achievement Program, TRIO	2015 - 2017
Presidential Achievement Award, St. Lawrence University	2013 - 2017

Relevant Work Experience

Private Tutor, Varsity Tutors LLC, NJ and NYC	April, 2018 - Aug., 2018
Certified Substitute Teacher, ESS LLC, Hudson County, NJ	March, 2018 - July, 2018
Lab Assistant, Vivarium at St. Lawrence University, Canton, NY	April, 2015 - May, 2017

Community Outreach and Leadership Experience

Student Representative, Fisk-Vanderbilt Masters-to-PhD Bridge Program, Steering Committee	June, 2019 - Present <i>Nashville, TN</i>
Social Outreach Coordinator, Vanderbilt University SACNAS Chapter, Executive Board	June, 2019 - Present <i>Nashville, TN</i>
Student Volunteer, Upstate Correctional Facility Inside-Out Program, St. Lawrence University	Spring Semester 2015 <i>Malone, NY</i>
Crisis Counselor Volunteer, Reachout County Crisis Hotline, St. Lawrence County	Spring 2014, Fall 2014 <i>Potsdam, NY</i>
Trip Leader, Pre-Orientation Rock Climbing Trip, St. Lawrence University	August, 2014 <i>Adirondack Mountains, NY</i>

Skills

Histology, Immunohistochemistry; Fluorescent and Confocal Microscopy; Tissue Sectioning – Vibratome and Microtome Cryostat; Molecular Biology Techniques: RT-qPCR, FACS, RNA Sequencing; Lab animal care: mice, rats, *Xenopus laevis*, and *C. elegans*; Data Analysis: SPSS, Prism, Image J, MiniTab

*Abstract published