

Cristina Marie Rivera Quiles
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Education

Michigan State University, East Lansing MI
Neuroscience PhD
Current GPA: 4.00

Expected graduation date: May 2025

University of Puerto Rico, Cayey PR
Bachelor of Science in Biology
GPA: 3.89

Graduation date: May 2020

Research Experience

Graduate student, Michigan State University September 2020 – Present
Project title: “Chronic Morphine Increases Expression of the Neuropeptide NMS in Ventral Tegmental Area Dopamine Neurons”
Project description: I’m conducting behavioral assays on mice following genetic manipulations using viral vectors to identify the role of subpopulations of ventral tegmental area dopaminergic neurons in morphine behaviors.
Advisor: Dr. Michelle Mazei-Robison

Undergraduate researcher, University of Puerto Rico, Cayey August 2016 – May 2020
RISE Program
Project title: “Molecular Phylogenetic Analyses of Plant Genomic Regions Amplified Using PCR”
Advisor: Dr. Michael Rubin

Undergraduate researcher, Harvard/Boston’s Children’s Hospital. May 2019 – August 2019
HHMI – Exceptional Research Opportunities Program
Project title: “Generation and Characterization of mESC-derived Oculomotor Neuron Models of Congenital Cranial Dysinnervation Disorders”
Advisors: Dr. Elizabeth Engle, Dr. Julie Jurgens

Undergraduate researcher, Michigan State University
Bridge to a Ph.D. in Neuroscience Program – NIH ENDURE August 2018 – December 2018
Project title: “Defining the LHA Neurotensin Neurons Role in Drinking Behavior”
Advisors: Dr. Gina Leininger, Dr. Gizem Kurt

Undergraduate researcher, Harvard/Boston’s Children’s Hospital May 2018 – August 2018
HHMI – Exceptional Research Opportunities Program
Project title: “Generation and Characterization of mESC-derived Oculomotor Neuron Models of Congenital Cranial Dysinnervation Disorders”
Advisors: Dr. Elizabeth Engle, Dr. Julie Jurgens

Undergraduate researcher, Michigan State University May 2017 – August 2017
Bridge to Ph.D. in Neuroscience Program – NIH ENDURE
Project title: “Role of Lateral Hypothalamic Neurotensin Neurons in Drinking Behavior”
Advisors: Dr. Gina Leininger, Dr. Gizem Kurt

Undergraduate researcher, Michigan State University May 2016 – August 2016
Bridge to PhD in Neuroscience Program – NIH ENDURE
Project title: “Defining the Neurochemistry and Connectivity of Neurotensin Receptor-1 Neurons in the Lateral Preoptic Area”
Advisors: Dr. Gina Leininger, Gizem Kurt

High school researcher, Benjamin Harrison Vocational High School August 2014 – December 2014
HHMI/UPR Cayey laboratory

Project title: “Comparative study of the biodegrading activity of *Pseudomonas sp.* and *Penicillium sp.* in marine and costal ecosystems contaminated with hydrocarbons; scale simulator”

Advisors: Professor Joannie del Toro, Dr. Michael Rubin

Research funding

Howard Hughes Medical Institute Gilliam Fellowship

September 2022-present

Graduate fellowship program awarded by HHMI to advisor/student pairs. It provides 3 years of graduate stipend as well as a discretionary allowance and institutional allowance for the graduate student, and a diversity initiative fellowship for the advisor.

NSF Graduate Research Fellowship (GRFP)

September 2020-July 2022

Graduate fellowship program awarded by NSF to graduate students. I applied as a senior in college and was awarded the fellowship for the start of my graduate degree. This is a 3-year award with tuition and stipend coverage; however, I declined the 3rd year of funding in favor of the HHMI Gilliam fellowship.

MSU University Distinguished Fellowship

September 2020

This fellowship is awarded by Michigan State University to incoming graduate students who demonstrate academic and leadership potential. It consists of two years of tuition and stipend. However, I declined this award in favor of my NSF GRFP.

MSU College of Natural Science Recruitment Fellowship

Summer 2020

This fellowship is awarded by the college of natural science at Michigan State University to incoming graduate students. It consists of one year of tuition and stipend coverage, as well as an additional “early start” that paid a stipend for students to do a summer rotation before the start of their program. Although I accepted the early start fellowship, the rest of the funds were declined in favor of my NSF GRFP.

Awards and Honors

Minnesota Symposium on Addiction Neuroscience Poster Award

October 2024

UT Dallas Supporting Outstanding Academic Research Award (SOAR)

October 2024

NIDA Diversity Scholars Travel Award

August 2024

SFN Trainee Professional Development Award

July 2024

MSU Graduate School Travel Award

June 2024

NIH Outstanding Scholars in Neuroscience Award (OSNAP)

May 2024

Yale Ciencia Academy Fellow

May 2024

Abby Loudermilk Travel Award for BBC 2024

February 2024

ENDURE – BPNP Distinguished Scholar Award

July 2023

MSU Neuroscience Graduate Program Research Excellence Award

May 2023

MSU Department of Physiology Joseph Meites travel award

May 2023

ASPET travel award

May 2023

Carl Storm Underrepresented Minority Fellowship

August 2022

Daniel T. O'Connor Young Investigator Travel Award

April 2022

ASPET travel award

April 2022

Dean's list, UPR Cayey

August 2016-May 2020

1st place elevator talk at ENDURE Society of Neuroscience Conference

November 2018

Tennis Athlete Scholarship	August 2015-May 2017
Society of Toxicology Conference Travel Award	March 2017
SACNAS Conference Travel Award	October 2016
First Place at the 2016 UPR Cayey RISE Summer Research Symposium	August 2016
High School Graduation Valedictorian Award	May 2015
Travel Award to INTEL's ISEF	March 2015
First grand prize at Regional Science Fair	March 2015

Publications

1. **Rivera Quiles C**, Simmons S, Dodson O, Alday M, Camacho Fontánez N, Garrison A, Hu Q., Heller E, Mazei-Robison M.S. Identification of a novel population of neuromedin S expressing neurons in the ventral tegmental area that promote morphine-elicited behavior. *Journal of Neuroscience*. *Under Revision*
2. Jurgens JA, Matos Ruiz P, King J, ... **Rivera-Quiles C** ... et al. (2024) bioRxiv 2024.09.12.612713
3. J Jurgens JA, Barry B, Chan W-M, ... **Rivera Quiles C**... et al. (2024) Expanding the genetics and phenotypes of ocular congenital cranial dysinnervation disorders. *Genetics in Medicine* 101216.
4. Shafieichaharberoud F, Lang S, Whalen C, **Rivera Quiles C**, Purcell L, Talbot C, Wang P, Norton EB, Mazei-Robison M, Sulima A, Jacobson AE, Rice KC, Matyas GR, Huang X (2024) Enhancing Protective Antibodies against Opioids through Antigen Display on Virus-like Particles. *Bioconjugate Chemistry* 35:164-173.
5. Kurt G, Kodur N, **Quiles CR**, Reynolds C, Eagle A, Mayer T, Brown J, Makela A, Bugescu R, Seo HD, Carroll QE, Daniels D, Robison AJ, Mazei-Robison M, Leininger G (2022) Time to drink: Activating lateral hypothalamic area neurotensin neurons promotes intake of fluid over food in a time-dependent manner. *Physiol Behav* 247:113707.
6. Schroeder LE, Furdock R, **Quiles CR**, Kurt G, Perez-Bonilla P, Garcia A, Colon-Ortiz C, Brown J, Bugescu R, Leininger GM (2019) Mapping the populations of neurotensin neurons in the male mouse brain. *Neuropeptides* 76:101930.

Oral research presentations

UT Dallas SOAR Symposium, Dallas, TX October 2024
Determination of the Role of Ventral Tegmental Area Neuromedin-S Expression and Cellular Activity in Morphine Behavior
C. Rivera Quiles, O. Dodson, S. Fernandez, M. Alday, K. McGrath, S.C. Simmons, B. Juarez, M. Mazei-Robison

Neurobiology of Addiction/Gordon Research Seminar, Newry, ME August 2024
Role of Neuromedin S-expressing Ventral Tegmental Area Neurons in Morphine Behavior
C. Rivera Quiles, O. Dodson, M. Alday, M. Mazei-Robison

MSU Neuroscience Program Cross Campus Research Day, East Lansing, MI May 2024
Determination of the Role of Ventral Tegmental Area Neuromedin-S Expression and Cellular Activity in Morphine Behavior
C. Rivera Quiles, O. Dodson, S. Fernandez, M. Alday, K. McGrath, S.C. Simmons, B. Juarez, M. Mazei-Robison

Behavior, Biology, and Chemistry, San Antonio, TX March 2024
Role of Neuromedin S-expressing Ventral Tegmental Area Neurons in Morphine Behavior
C. Rivera Quiles, O. Dodson, M. Alday, M. Mazei-Robison

MSU Neuroscience Program Cross Campus Research Day, East Lansing, MI May 2023
Role of Neuromedin S-expressing Ventral Tegmental Area Neurons in Morphine Behavior
C. Rivera Quiles, O. Dodson, M. Alday, M. Mazei-Robison

MSU Neuroscience Program Retreat, East Lansing, MI November 2023
Role of Neuromedin S-expressing Ventral Tegmental Area Neurons in Morphine Behavior
C. Rivera Quiles, O. Dodson, M. Alday, M. Mazei-Robison

First-Author Poster Presentations

HHMI investigator science meeting, HHMI HQ, Bethesda, MD December 2024
Determination of the Role of Ventral Tegmental Area Neuromedin-S Expression and Cellular Activity in Morphine Behavior
C. Rivera Quiles, O. Dodson, S. Fernandez, M. Alday, K. McGrath, S.C. Simmons, B. Juarez, M. Mazei-Robison

Society for Neuroscience Conference, Chicago, Illinois October 2024
Determination of the Role of Ventral Tegmental Area Neuromedin-S Expression and Cellular Activity in Morphine Behavior
C. Rivera Quiles, O. Dodson, S. Fernandez, M. Alday, K. McGrath, S.C. Simmons, B. Juarez, M. Mazei-Robison

Neurobiology of Addiction/Gordon Research conference, Newry, Maine August 2024
Role of Neuromedin S-expressing Ventral Tegmental Area Neurons in Morphine Behavior
C. Rivera Quiles, O. Dodson, M. Alday, M. Mazei-Robison

Japan Neuroscience Society Conference, Fukuoka, Japan July 2024
Role of Neuromedin S-expressing Ventral Tegmental Area Neurons in Morphine Behavior
C. Rivera Quiles, O. Dodson, M. Alday, M. Mazei-Robison

Behavior, Biology, and Chemistry, San Antonio, Texas March 2024
Role of Neuromedin S-expressing Ventral Tegmental Area Neurons in Morphine Behavior
C. Rivera Quiles, O. Dodson, M. Alday, M. Mazei-Robison

HHMI investigator science meeting, Janelia Research Campus, Virginia January 2024
Role of Neuromedin S-expressing Ventral Tegmental Area Neurons in Morphine Behavior
C. Rivera Quiles, O. Dodson, M. Alday, M. Mazei-Robison

Society for Neuroscience Conference, Washington DC November 2023
Role of Neuromedin S-expressing Ventral Tegmental Area Neurons in Morphine Behavior
C. Rivera Quiles, O. Dodson, M. Alday, M. Mazei-Robison

Catecholamines Gordon Research Conference, Castelldefels, Barcelona August 2023
Role of Neuromedin S-expressing Ventral Tegmental Area Neurons in Morphine Behavior
C. Rivera Quiles, M. Alday, O. Dodson, M. Mazei-Robison

ASPET Conference, St. Louis, Missouri May 2023
Role of Neuromedin S-expressing Ventral Tegmental Area Neurons in Morphine Behavior
C. Rivera Quiles, M. Alday, O. Dodson, M. Mazei-Robison

HHMI Gilliam Conference, Chevy Chase, Maryland March 2023
Role of Neuromedin S-expressing Ventral Tegmental Area Neurons in Morphine Behavior
C. Rivera Quiles, M. Alday, O. Dodson, M. Mazei-Robison

Society for Neuroscience Conference, San Diego, California November 2022
Role of Neuromedin S-expressing Ventral Tegmental Area Neurons in Morphine Behavior

C. Rivera Quiles, M. Alday, O. Dodson, M. Mazei-Robison

National Hispanic Science Network Conference, Grand Rapids, Michigan September 2022

Role of Neuromedin S-expressing Ventral Tegmental Area Neurons in Morphine Behavior

C. Rivera Quiles, M. Alday, M. Mazei-Robison

Neurobiology of Drug Addiction/Gordon Research Conference, Newry, Maine August 2022

Role of Neuromedin S-expressing Ventral Tegmental Area Neurons in Morphine Behavior

C. Rivera Quiles, M. Alday, M. Mazei-Robison

Experimental Biology/ASPET Conference, Philadelphia, PA April 2022

Role of Neuromedin S-expressing Ventral Tegmental Area Neurons in Morphine Behavior

C. Rivera Quiles, M. Alday, M. Mazei-Robison

Society for Neuroscience Conference, Virtual November 2021

Chronic Morphine Increases Expression of the Neuropeptide NMS in Ventral Tegmental Area Dopamine Neurons

Cristina M. Rivera-Quiles, Sarah Cooper Simmons, Amber L. Garrison, Nicole M. Camacho-Fontáñez, Michelle S. Mazei-Robison

National Hispanic Science Network Conference, Virtual September 2021

Chronic Morphine Increases Expression of the Neuropeptide NMS in Ventral Tegmental Area Dopamine Neurons

Cristina M. Rivera-Quiles, Sarah Cooper Simmons, Amber L. Garrison, Nicole M. Camacho-Fontáñez, Michelle S. Mazei-Robison

International Narcotics Research Conference, Virtual July 2021

Chronic Morphine Increases Expression of the Neuropeptide NMS in Ventral Tegmental Area Dopamine Neurons

Cristina M. Rivera-Quiles, Sarah Cooper Simmons, Amber L. Garrison, Nicole M. Camacho-Fontáñez, Michelle S. Mazei-Robison

HHMI EXROP Conference, Chevy Chase, MD May 2019

Generation and Characterization of mESC-derived Oculomotor Neuron Models of Congenital Cranial Dysinnervation Disorders

Cristina M. Rivera-Quiles, Julie Jurgens, Elizabeth Engle

Society for Neuroscience Conference, San Diego, CA November 2018

Generation and Characterization of mESC-derived Oculomotor Neuron Models of Congenital Cranial Dysinnervation Disorders

Cristina M. Rivera-Quiles, Julie Jurgens, Elizabeth Engle

Junior Technical Meeting/Puerto Rico Interdisciplinary Scientific Meeting, Gurabo, PR April 2018

Molecular Phylogenetic Analyses of Plant Genomic Regions Using Bar Specific PCR Primers

Cristina M. Rivera-Quiles, Michael Rubin

Society of Toxicology Conference, San Antonio, TX March 2018

Role of Lateral Hypothalamic Neurotensin Neurons in Drinking Behavior

Cristina M. Rivera-Quiles, Gizem Kurt, Gina Leininger

Annual Biomedical Research Conference for Minority Students, Phoenix, AZ November 2017

Molecular Phylogenetic Analyses of PCR Amplified Genomic Regions from Plants with Economic or Medicinal Value Using Primers Specific for Bar Coding Genes

Cristina M. Rivera-Quiles, Michael Rubin

RISE Summer Research Symposium, Cayey, PR August 2017
 Role of Lateral Hypothalamic Neurotensin Neurons in Drinking Behavior
Cristina M. Rivera-Quiles, Gizem Kurt, Gina Leininger

Mid-SURE, East Lansing, MI August 2017
 Role of Lateral Hypothalamic Neurotensin Neurons in Drinking Behavior
Cristina M. Rivera-Quiles, Gizem Kurt, Gina Leininger

Society of Toxicology Conference, Baltimore, MD March 2017
 Defining the Neurochemistry and Connectivity of Neurotensin Receptor-1 Neurons in the Lateral Preoptic Area
Cristina M. Rivera-Quiles, Gizem Kurt, Gina Leininger

SACNAS conference, Long Beach, California October 2016
 Defining the Neurochemistry and Connectivity of Neurotensin Receptor-1 Neurons in the Lateral Preoptic Area
Cristina M. Rivera-Quiles, Gizem Kurt, Gina Leininger

RISE Summer Research Symposium, Cayey, PR August 2016
 Defining the Neurochemistry and Connectivity of Neurotensin Receptor-1 Neurons in the Lateral Preoptic Area
Cristina M. Rivera-Quiles, Gizem Kurt, Gina Leininger

Mid-SURE, East Lansing, MI August 2016
 Defining the Neurochemistry and Connectivity of Neurotensin Receptor-1 Neurons in the Lateral Preoptic Area
Cristina M. Rivera-Quiles, Gizem Kurt, Gina Leininger

INTEL'S International Science and Engineering Fair, Pittsburgh, PA May 2015
 Comparative study of the biodegrading activity of Pseudomonas sp. and Penicillium sp. in marine and coastal ecosystems contaminated with hydrocarbons; scale simulator
Cristina M. Rivera-Quiles

Regional Science Fair, Cayey, PR March 2015
 Comparative study of the biodegrading activity of Pseudomonas sp. and Penicillium sp. in marine and coastal ecosystems contaminated with hydrocarbons; scale simulator
Cristina M. Rivera-Quiles

Leadership

Neuroscience Program Near-Peer Mentorship Program, founder September 2023-Present
 Initiated a “near-peer” mentorship program that pairs incoming first-year neuroscience PhD students with senior graduate students in the program with the goal to: help new graduate students integrate into life at MSU, provide the students with insightful knowledge of NSP and University policies and expectations, to provide support and guidance on teaching, research, and service, and to promote community amongst the neuroscience PhD student community.

Graduate Student Council, President September 2023-May 2024
 As neuroscience graduate student council president, I work with both faculty and students to communicate concerns, updates, and ideas. I’m also involved in the outreach and graduate recruitment activities.

Neuroscience executive committee, graduate student representative August 2022-May 2023
 MSU’s neuroscience graduate program (NSP) is run by the Neuroscience Executive Committee. As a

graduate student representative, I'm involved in aspects of NSP recruitment, as well as represent the overall NSP student body in critical decisions relating to changes to the program.

Graduate Student Council, cohort representative September 2020-May 2024

As cohort representative I participate in the neuroscience program graduate student council to communicate questions or concerns students in my cohort may have concerning the program. I've had this role during my first and second years in the program.

Graduate Affairs Committee, graduate student representative September 2021-December 2021

The graduate affairs committee deals with affairs pertaining the graduate students in the neuroscience program. I work with faculty to discuss ways to improve the program, and am involved in preparing the interview weekend, and reviewing applications of prospective graduate applicants.

Teaching and mentorship

Women in STEM seminar, speaker October 2023

As an alumnus of the Benjamin Harrison Vocational High School in Cayey, Puerto Rico, I was invited to give a virtual talk. I shared information about my research journey and gave my perspective of being a woman in STEM coming from this small school.

Neurobiology of Nervous Systems Disorders, TA Summer 2022

As a requirement for my Neuroscience PhD program, I served as a teaching assistant for the online course NEU 846 (Neurobiology of Nervous Systems Disorders). My responsibilities included reviewing the syllabus and test dates, reviewing homework and discussion posts, and keeping track of students' grades and progress.

Bridge to Ph.D. in Neuroscience Program, mentor May 2021-present

As a BPNP mentor, I've trained undergraduate students and assisted them in conducting their own research projects, giving talks, and preparing a research poster. I've also served as a "near mentor" and given advice on applying to graduate school and given various talks about my research and my career path.

MiNDS and BRIDGE Summer Speaker June 2022

The Mid-Atlantic Neuroscience Diversity Scholars ([MiNDS](#)) Program at Temple University is a summer research program that provides underrepresented minorities with paid summer research experiences. I gave a talk about my research project and my career path. This talk was open to students in the MiNDS program and the [BRIDGE](#) program.

Project SHORT, mentor September 2021-December 2022

This program serves students applying to graduate school and who need help with the process. I served as a mentor by reviewing applications and giving general advice about graduate school.

Genetics (BIOL3305) laboratory, Teaching Assistant January 2019-May 2019

I gave presentations, graded tests and trained students in laboratory techniques and presentations.

RISE GMO Foods Workshop, Teaching Assistant April 2018

Under the mentoring of Dr. Michael Rubin, I worked as a teaching assistant. I helped freshman members identify whether samples were GMO foods.

RISE BIC project, Teaching Assistant February 2017-April 2017

Under the mentoring of Dr. Michael Rubin, I worked as a teaching assistant. I helped freshman members isolate and characterize bacteria from soil samples.

Outreach

Cientifico Latino, GSMI personal statement reviewer
GSMI fellowship writing reviewer

Fall 2023

Fall 2024

Cientifico Latino is a program that provides multiple resources to assist with applying and succeeding in graduate school and beyond. One of their programs, the Graduate Student Mentorship Initiative (which I am an alumnus of), provides students from minoritized backgrounds with assistance for graduate school applications including personal statement reviewing and mock interviews.

Girl's Math and Science Day, activity organizer

May 2023

Mid-Michigan's GMSD aims to introduce middle-school students to many fields of STEM by hands-on interaction with researchers and projects. This year I didn't attend in person, but co-organized a series of neuroscience activities for the students to learn about.

MSU's GUPPY, volunteer

July 2022

Every year, MSU has a Gifted University for Parents and Precocious Youth (GUPPY) summer program that provides middle school students with advanced courses taught by MSU students and faculty. As a volunteer, I assisted kids with hands-on training across multiple days on various physiology topics including neuroscience, and the respiratory system.

Girl's Math and Science Day, volunteer

May 2022

Mid-Michigan's GMSD aims to introduce middle-school students to many fields of STEM by hands-on interaction with researchers and projects.

Letters to a Pre-Scientist, pen pal mentor

September 2021-present

This program connects middle school and high school students from low-income communities with scientists through letters. In my letters I talk about my career path, my research, and my life outside of academia to demystify the scientific career and provide advice and support for a potential future scientist.

Neuroscience Program Newsletter

Summer 2021-Summer 2022

The MSU neuroscience program newsletter provides updates and general news for the students in the graduate program. I worked with the editor, wrote articles, and provided feedback and suggestions for the newsletter.

Neuroscience Program Podcast

Summer 2021-Summer 2022

In collaboration with another graduate student, I worked on setting up the MSU neuroscience program podcast. Our goal was to talk about neuroscience, graduate school and promote the researchers that are part of the MSU Neuroscience program.

Radians school science fair, Judge

March 2019

I served as a judge in Radians' science fair for high school students. I judged a variety of projects ranging from genetics to neuroscience and botany.

Volunteer and tour guide at UPR Cayey's Ecological Education Center

Spring 2017-Fall 2017

UPR Cayey's Ecological Education Center serves as a teaching tool for zoology students and elementary through high school students. I gave tours, cleaned the center, and fed the animals that are housed there.