

Katherine Lynn Anderson

Ph.D. Candidate

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Overview

I am a Ph.D. Candidate in the Molecular, Cellular, and Developmental Biology Program at The City University of New York (CUNY). My research in Dr. Osceola Whitney's molecular neuroscience lab uses an avian model of vocal learning, a parallel to human behavioral plasticity. Currently, I investigate social learning mechanisms in the zebra finch songbird brain. I am pursuing a career as a tenure-track independent researcher. In addition to neuroscience, I also work to promote science literacy and science accessibility in higher education through improved communication methods. As the co-founder of CUNYSciCom, a student-led organization that aims to build communication skills in STEM graduate students, I have organized two science-communication-focused symposiums.

Education

2019 – Present The Graduate Center, CUNY, New York, NY
Ph.D. Candidate in Biology
Subprogram: Molecular, Cellular, and Developmental Biology

Certificate: Interactive Technology and Pedagogy; culminating project: a critical analysis of “weed-out” style courses and peer-reviewed pedagogical alternatives in introductory level undergraduate science courses

2016 – 2019 The University of Illinois at Urbana-Champaign, Urbana, IL
B.S. in Molecular and Cellular Biology
Minor: Chemistry

Certificate: Cell and Developmental Biology; result of a structured upper-level course schedule leading to a specialized undergraduate experience

Research Experience

2019 – Present City College of New York (CCNY), CUNY, New York, NY
Advisor: Dr. Osceola Whitney, Assistant Professor of Biology
Working Thesis Title: *Neural connections for social-context-dependent activation of an avian vocal control network*

In the Whitney lab, I completed my second level exam and prospectus in June 2022. My thesis work centers on the molecular mechanisms of socially mediated learned vocal communication. I focus on cellular activation in social and motor production and learning pathways. Additionally, I am interested in socially implicated hormones, such as oxytocin, vasopressin, and dopamine, and their associated receptors.

2018 – 2019 University of Illinois at Urbana-Champaign, Urbana, IL
Advisor: Dr. Xin Li, Assistant Professor of Cell and Developmental Biology
Thesis Title: *The effects of HDAC1 and Trx on temporal expression patterns in medulla neuroblasts*

The Li lab investigates the regulation of temporal patterning in neural progenitors and subsequent generation of neural diversity. I used RNAi and MARCM techniques to examine the regulatory properties of both HDAC1 and Trithorax (Trx) in greater detail. In addition, a large bioinformatics screen identified potential transcription factor regulators that may bind to the Eyeless (Ey) gene. I used a combination of immunostaining and confocal microscopy to validate the expression of potential regulators in the temporal and physical vicinity of Ey expression in medulla neuroblasts.

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Published Writing

- Oct 2022 [*Should we sound smarter than eighth graders?*](#)
- Published in *Matter, a Cell Press Journal*
 - Opinion-piece written to publicize a student-led effort to increase the standard of public facing science communications by graduate students
- April 2022 [*Is It Time to Rethink the Lifecycle of Plastic?*](#)
- Press release for recent institution publication, written as part of Graduate Center Science Communication Fellowship

In-progress Writing

- Est. pub 2023 Draft Title: *Social context activation of a brain network motivating social behavior in male zebra finches*
- Submitted to *Brain Structure and Function* in February 2023
- Est. pub 2023 Draft Title: *Weeding out weed-outs: a call for more-inclusive pedagogical practices in early undergraduate STEM education*
- Produced as a final project for graduate certificate in Interactive Technology and Pedagogy

Oral Presentations

- Feb 2023 Bridging Brains and Bioacoustics, Virtual
Talk Title: [*Neural mechanisms underlying social-context-dependent behavior*](#)
Scheduled Duration: 20 minutes; 15 minutes questions
- Nov 2021 CCNY Neuroscience Seminar Series, Virtual
Talk Title: *Social-context-dependent activation of the social behavior network in zebra finch songbirds*
Scheduled Duration: 45 minutes; 15 minutes questions

Honors and Awards

- 2021 – 2021 Provost's Pre-Dissertation Science Research Award
- 2020 – 2023 Graduate Research Training Initiative for Student Enhancement (G-RISE)
NIH T32 Training Grant
- 2019 – 2024 J. Bruce Llewellyn Fellowships for African-American Doctoral Students
- 2019 – 2024 CUNY Science Scholarship

Professional Memberships

- 2021 – Present Society for Neuroscience
- 2019 – Present The New York Academy of Sciences

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Poster Presentations

- Nov 2022 Society for Neuroscience: Neuroscience 2022, San Diego Conference Center, San Diego, CA
Poster Title: *Singing context-dependent activation of oxytocin receptor neurons in the avian basal ganglia*
- Aug 2022 Gordon Research Conference: Neural Mechanisms of Acoustic Communication, Mount Holyoke College, South Hadley, MA
Poster Title: *Activation of the social behavior network in social and non-social singing zebra finches*
- June 2022 MCD-CNC Biology Subprogram Retreat, The Advanced Science Research Center, New York, NY
Poster Title: *Social-context-dependent activation of the social behavior network in zebra finch songbirds*
- May 2022 G-RISE Spring Research Showcase, City College of New York, New York, NY
Poster Title: *Social-context-dependent activation of the social behavior network in zebra finch songbirds*
- Mar 2022 NINDS OPEN Connections Poster Symposium: Advancing Scientific Excellence Through Diversity (Virtual)
Poster Title: *Social-context-dependent activation of the social behavior network in singing and silent male zebra finch songbirds*
- Nov 2021 Society for Neuroscience: Neuroscience 2021 (Virtual)
Poster Title: *Social-context-dependent activation of the social behavior network in zebra finch songbirds*
- June 2021 *Promoting Science Accessibility: A Symposium!* (Virtual)
Poster Title: *Parallels between social vocal learning in zebra finches and humans*
- May 2019 Undergraduate Research Symposium, UIUC, Urbana, IL
Poster Title: *Characterizing the role of chromatin modifiers in temporal patterning of drosophila medulla neuroblasts*

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Professional Development: Science Communication

2021 – 2022 Graduate Center Science Communication Fellowship

- Provided real-world training in multiple science communication fields: science writing, digital content creation, event publicization, funds campaigning, and live-audience engagement
- Co-organized and participated in a [conversation](#) to highlight the similarities between artists and scientists

2021 – Present CUNYSciCom: Chartered Student Organization for Science Communication

- Co-founded this student organization focused on providing opportunities for STEM graduate students to practice public-facing communication skills
- Organized annual symposiums where students receive feedback on their presentation styles
 - June 2021: [Promoting Science Accessibility: A Symposium!](#)
 - June 2022: [Communicating Your Science Symposium](#)
 - June 2023 Title: *To Be Determined*
- Have gained institutional recognition (2022) and financial support (2021, 2022), as well as external financial support (2022)

July 2020 Judge, [CUNY Research Scholars Program](#) 2020 Virtual Symposium

- Provided feedback to underrepresented undergraduate students performing research at two-year community colleges

Professional Development: Pedagogy

2022 [STEM Pedagogy Fellowship](#), The Teaching and Learning Center, CUNY

- Selected to participate in the Early Research Immersion Initiative
- Provided training specific to increase student success in course-based research experiences

2020 [Online Teaching Essentials: A Foundational Workshop for CUNY Faculty](#), School of Professional Studies, CUNY

- Provided an overview of how to effectively use Blackboard to facilitate online learning

2020 [Teach@CUNY Summer Institute](#), The Teaching and Learning Center, CUNY

- The Institute was aimed to prepare new college instructors for upcoming teaching responsibilities and for a lifetime as engaged, committed educators

Leadership Roles

2020 – Present Biology Program Representative, Doctoral and Graduate Student Council (DGSC), CUNY Graduate Center

2020 – 2022 DGSC Officer for Governance and Membership, CUNY Graduate Center

2020 – Present Graduate Council Biology Student Representative

2020 – Present CUNY Molecular, Cellular, and Developmental Biology Advisory Committee Student Representative