

Amelia Cuarenta, Ph.D.

Georgia State University | Center for Behavioral Neuroscience
100 Piedmont Ave SE, Atlanta, GA 30303
acuarenta@gsu.edu | she/her

Education

University of Wisconsin-Madison, Madison, WI

Ph.D. in Biological Psychology

Dec 2020

Advisor: Dr. Anthony P. Auger, Ph.D.

Dissertation: *Retrotransposons Induce Genetic Mosaicism in the Developing Brain*

University of Wisconsin-Madison, Madison, WI

B.S. double major in Psychology and Human Development and Family Studies

May 2014

Child Development Option

Research Positions

Postdoctoral Research Fellow

Present

Neuroscience Institute and Center for Behavioral Neuroscience at **Georgia State University**

Atlanta, GA

Advisor: Dr. Debra Bangasser, Ph.D.

Investigating the effect of early life adversity on risky behaviors and underlying genetic and epigenetic changes.

Postdoctoral Research Associate

2020 – 2022

Department of Psychology and Neuroscience at **Temple University**

Philadelphia, PA

Advisor: Dr. Debra Bangasser, Ph.D.

Investigating the effect of early life adversity on risky behaviors and underlying genetic and epigenetic changes.

Graduate Student Researcher

2014 – 2020

Behavioral Neuroendocrinology Lab

Department of Psychology at the **University of Wisconsin-Madison**

Advisor: Dr. Anthony P. Auger

Studied sex differences in response to psychological and physiological stress and the effect on gene expression with particular emphasis on the retrotransposon, Line1.

Undergraduate Research Assistant

2013 – 2014

Behavioral Neuroendocrinology Lab

Department of Psychology at the **University of Wisconsin-Madison**

Advisor: Dr. Anthony P. Auger

Explored how knockdown of the disrupted in schizophrenia-1 (Disc-1) gene altered juvenile social play behavior in male and female rodents.

Undergraduate Research Assistant

2012 – 2014

SPACE Lab

Department of Psychology – Cognitive Area Group at the **University of Wisconsin-Madison**

Advisor: Dr. Vanessa R. Simmering

Studied how children learn and remember object properties and their orientation in space and how this relationship changes throughout childhood.

Undergraduate Research Assistant

2012

UW Couples Lab

School of Human Ecology at the **University of Wisconsin-Madison**

Advisor: Dr. Lauren M. Papp

Studied romantic partnerships and their behavior during conflict resolution and how spouses' negative affect correlated with family member cortisol levels throughout the day.

Ongoing Grants

National Science Foundation Award, Postdoctoral Research Fellowship in Biology 2023 – 2025
2208822, PI: Cuarenta
Project Title: Rewriting the code: elucidating how early life adversity alters DNA to affect amygdala-related behavior
Total Award Amount: \$138,000

Completed Grants

NIDA Diversity Award, Supplement R01 DA049837, PI: Bangasser 2021 – 2023
Supplement Awardee: Amelia Cuarenta
Project Title: Sex differences in stress inoculation of addiction-like phenotypes
Total Award Amount: \$115,577

Awards, Honors, & Fellowships

GSU Postdoctoral Symposium Outstanding Oral Presentation 2023
Georgia State University

SBN Abstract Award 2023
Society for Behavioral Neuroendocrinology

NIDA Diversity Scholars Network (NDSN) Program 2023
National Institute on Drug Abuse program aimed at increasing funding of underrepresented early career investigators

CISAB & CBN Travel Award 2023
Center for the Integrative Study of Animal Behavior and Indiana University and the Center for Behavioral Neuroscience at GSU

ACNP Travel Award 2022
American College of Neuropsychopharmacology

Philadelphia SPINE Fellow 2022
Symposium for Postdoctoral Initiatives in Neuroscience Excellence

American Psychological Foundation/Minority Fellowship Program SEE-Diversity to Success Workshop Scholarship 2022
American Psychological Foundation

Lyn Clemens New Investigator Award 2022
Society for Behavioral Neuroendocrinology

SBN Travel Award 2022
Society for Behavioral Neuroendocrinology

ACNP Near Peer Mentorship Program 2021 – 2022
American College of Neuropsychopharmacology

Neuroscience Scholars Program (NSP) Fellow 2021 – 2023
Society for Neuroscience

Psychology Summer Fellowship 2020
Department of Psychology Board of Visitors, University of Wisconsin-Madison

Future Faculty Partner 2019
UW-Madison Teaching Academy, University of Wisconsin-Madison

Hertz Travel Award Department of Psychology, University of Wisconsin-Madison	2019
Letters & Science Community of Graduate Research Scholars (CGRS) Fellowship University of Wisconsin-Madison, College of Letters & Sciences	2018
Fall Graduate Lecturer Award University of Wisconsin-Madison, Psychology Department	2018
Graduate Student Peer Mentor Award The Graduate School, University of Wisconsin-Madison	2018
Menzies and Royalty Research Award Department of Psychology, University of Wisconsin-Madison	2017
Hertz Travel Award Department of Psychology, University of Wisconsin-Madison	2017
WISCIENCE Teaching Fellowship Wisconsin Institute for Science Education and Community Engagement WISCIENCE, University of Wisconsin-Madison	2016
Hertz Travel Award Department of Psychology, University of Wisconsin-Madison	2016

Publications

*denotes mentored undergraduate student

1. Monari P, Hammond E, Malone C, **Cuarenta A**, Hiura L, Wallace K, Taylor L, Pradhan D (2023). Leveraging individual power to improve racial equity in academia. *Hormones and Behavior*, 10.1016
2. **Cuarenta A**, Kigar SL, Keese AP*, Guagliardo SE*, Chang L, Bakshi VP, Auger AP. (2023) DNA topoisomerase Top3 β is impacted by early life stress in the developing female and male rat brain. *Brain Research*, 10.106/j.brainres.2023.148339
3. Bangasser, DA, **Cuarenta A**. (2021) Sex differences in anxiety and depression: circuits and mechanisms, *Nature Reviews Neuroscience*, 10.1038/s41583-021-00513-0
4. **Cuarenta A**, Henion I*, Kigar SL, Chang L, Bakshi VP, Auger AP. (2021) Early life stress during the neonatal period alters social play and Line1 during the juvenile stage of development. *Scientific Reports*, 10.1038/s41598-021-82953-3
5. **Cuarenta A**, Kigar SL, Henion IC*, Karls KE*, Chang L, Bakshi VP, Auger AP. (2020) Early life stress increases Line1 DNA copy number within the developing hippocampus in a sex dependent manner. *Brain Research*, 10.1016/j.brainres.2020.147123
6. Chang L, Kigar SL, **Cuarenta A**, Ho JH, Gunderson HC, Bakshi VP, Auger AP. (2019) Early life stress alters opioid receptor mRNA levels within the nucleus accumbens in a sex-dependent manner. *Brain Research*, 1710:10.1016
7. Asimes AD, Kim CK, **Cuarenta A**, Auger AP, Pak TR. (2018). Binge Drinking and Intergenerational Implications Parental Preconception Alcohol Impacts Offspring Development in Rats. *Journal of the Endocrine Society*, 2:10.1210
8. Kigar SL, Chang L, Guerrero C, Sehring JR, **Cuarenta A**, Parker L, Bakshi VP, Auger AP. (2017) N⁶-methyladenine is an epigenetic marker of early life stress. *Scientific Reports*, 7:10.1038

Under review:

- a. Kigar S, **Cuarenta A**, Zuniga C, Chang L, Auger AP, Bakshi VP (Submitted). Invited contribution to Molecular Neuroscience. Brain, behavior, and physiological changes associated with predator stress – an animal model for trauma exposure in adult and neonatal rats. *Frontiers in Molecular Neuroscience*

Publications in progress:

- i. **Cuarenta A**, Karbalaei R, Imperio C, Flowers JH, Dupuis MH, Hehn AT*, Deckers CG, Wimmer ME, Bangasser DA. (December 2023 bioRxiv planned, January 2024 submission planned) Early life adversity alters cocaine addiction-related phenotypes and cell-type specific transcriptional changes in the nucleus accumbens. (Status: Data collection completed. Manuscript in prep.)

- ii. **Cuarenta A**, Roth SL*, Hehn AT*, Deckers CG, Ingram A, Dupuis MH, Famularo S, Wimmer ME, Bangasser DA. (January 2024 bioRxiv planned, February 2024 submission) Resource scarcity alters the basolateral amygdala transcriptome and conditionally reinforced behaviors. (Status: Last cohort of data collection currently ongoing with completion date set for 12/15/23).
- iii. **Cuarenta A**, Asimes AD, Field M*, Farabaksh Z*, Pak T, Auger AP. (Winter 2024 submission planned) Binge alcohol exposure alters the transposable element Line1 in a sex-specific multigenerational pattern (Status: Data collection completed. Manuscript in prep.)

Teaching Experience

COURSE INSTRUCTOR

Psychology 310, University of Wisconsin-Madison, Madison, WI

Fall 2020, Spring 2020, Fall 2019, Spring 2019, Fall 2018, Spring 2018, Fall 2017

Designed and taught the undergraduate discussion course that was a complement to the lecture. This course was designed with the intention of assisting underrepresented students at the University of Wisconsin-Madison in introduction to psychology. This course is an active classroom with mini lectures for students to work on the application of class content.

Zoology 523 Neurobiology, University of Wisconsin-Madison, Madison, WI

Summer 2019

Designed and taught this undergraduate course that provides an overview of basic mechanisms in cellular neurophysiology: electrophysiology and chemistry of nerve signals, mechanisms in integration, simple nervous pathways and their behavioral correlate.

Psychology 311 Issues in Psychology, University of Wisconsin-Madison, Madison, WI

Spring 2019 and Fall 2018

Designed and taught an undergraduate course that assists students in their student organization, Peer Leaders Association (PLA). PLA was designed as a student organization for students to lead study groups for their peers. The course was designed to give students experience with pedagogy.

Food Science, Wisconsin Center for Academically Talented Youth (WCATY), Madison, WI

Summer 2017

Designed and taught a course for high school students attending WCATY Summer Camp focusing on food and the complex economic, political, and sociological effects of choice.

Exploring Biology 100, University of Wisconsin-Madison, Madison, WI

Fall 2016

Course Co-Instructor with Olivia Cope, Greta Landis, Nikolai Radzinski, Michael Rowse, See Yeun Ting, and Dr. Christopher Trimby

Designed and implemented biology content for freshman students. This course was designed for students to sharpen their critical thinking skills and apply these skills to scientific endeavors.

GUEST LECTURER

Psychology 3006, Stress and the Brain. Temple University. Philadelphia, PA.

Guest lecture in Dr. Debra Bangasser's course. March 2022.

TEACHING ASSISTANT

Zoology 523 Neurobiology, University of Wisconsin-Madison, Madison, WI

Summer 2018

Psychology 202 Introduction to Psychology Flipped Classroom, University of Wisconsin-Madison, Madison, WI

Spring 2020

Psychology 202 Introduction to Psychology, University of Wisconsin-Madison, Madison, WI

Fall 2019, Spring 2019, Fall 2018, Spring 2018, Fall 2017

Psychology 526 Psychology of Criminal Minds, University of Wisconsin-Madison, Madison, WI

Spring 2017, Fall 2016, Spring 2016, Fall 2015, Spring 2015

Psychology 453 Human Sexuality, University of Wisconsin-Madison, Madison, WI
Summer 2019

Psychology 405 Abnormal Psychology, University of Wisconsin-Madison, Madison, WI
Summer 2015

Psychology 507 Psychology of Personality, University of Wisconsin-Madison, Madison, WI
Fall 2014

Psychology 449 Psychology of Animal Behavior, University of Wisconsin-Madison, Madison, WI
Fall 2014

Laboratory Skills

Animal Skills: rodent handling (Sprague Dawley and Long Evans rats), stereotactic surgery, injections (I.P. and S.C.), cannulation of jugular vein, blood collection of neonatal and adult rats, collection of internal organs including spleen and kidneys

Molecular Skills: Western blots, frozen tissue dissection, PCR, qPCR, tissue homogenization and RNA DNA and protein extraction, cDNA synthesis, DNA synthesis, gel electrophoresis, library prep for high-throughput sequencing, RNAseq, TRAPseq, long-read sequencing, REBELseq, MSRE, RNAscope, familiarity with DREADDS.

Behavioral Assays: juvenile social play observation and scoring, open field test, elevated plus maze, sociability, light/dark box, object recognition, autogrooming observations, allogrooming observations, Noldus Observer XT software, male sexual behavior testing and observation, intravenous self-administration, operant box testing, operant box behavior testing, familiarity with pre-pulse inhibition

Technical Skills: R statistical language, Adobe Creative Suite, GraphPad PRISM, SigmaPlot, SPSS, academic teaching, academic tutoring, professional and scientific writing, science communication, project management, grant writing and editing, familiarity with Bash and Python.

Invited Talks

1. **Cuarenta, A.** Resource scarcity produces sex-specific transcriptional changes in the basolateral amygdala and alters addiction-related behaviors. DePaul University, Conversations with Neuroscientists Series. Virtual, 2023.
2. **Cuarenta, A.** Resource scarcity produces sex-specific transcriptional changes in the basolateral amygdala and alters addiction-related behaviors. University of Wisconsin- Eau Claire, Department of Biology Seminar Series. Virtual. 2022.
3. **Cuarenta, A.** Resource scarcity produces sex-specific transcriptional changes in the basolateral amygdala and alters addiction-related behaviors. Philadelphia SPINE Symposium, Philadelphia, PA. 2022.
4. **Cuarenta, A.** Early life stress increases the retrotransposon, Line1, within the developing brain in a sex dependent manner. Organization for the Study of Sex Differences Annual Meeting, Virtual Meeting due to Covid19. 2021.
5. **Cuarenta, A.** Early life stress induces genetic mosaicism within the developing brain, *Data Blitz*, Department of Psychology University of Wisconsin-Madison. 2020.

Conference Proceedings

Talks

1. **Cuarenta A.** Resource scarcity produces sex-specific transcriptional changes in the basolateral amygdala and alters addiction-related behaviors. Nanosymposium at the Society for Neuroscience Conference. Washington D.C. 2023.
2. **Cuarenta A.** Rewriting the code: elucidating how early life adversity alters DNA to affect amygdala-related behavior. SACNAS National Diversity in STEM Conference. Portland, OR. 2023

3. **Cuarenta A.** Resource scarcity alters addiction-related behaviors and the basolateral amygdala transcriptome in sex-specific ways. Animal Behavior Conference at Indiana University. Bloomington, IN. 2023.
4. **Cuarenta A.** Resource scarcity produces sex-specific transcriptional changes in the basolateral amygdala and alters addiction-related behaviors” Winter Conference for Brain Research Annual Meeting. Snowbird, UT. 2023
5. **Cuarenta A.** “Resource scarcity produces sex-specific transcriptional changes in the basolateral amygdala and alters addiction-related behaviors” December 2022. American College of Neuropsychopharmacology Annual Meeting. Phoenix, AZ. 2022
6. **Cuarenta A,** Kigar SL, Henion IC, Karls KE, Chang L, Bakshi VP, Auger AP. “Early life stress induces genetic mosaicism within the developing rat brain” June 2022. Society for Behavioral Neuroendocrinology Annual Meeting. Atlanta, GA. 2022.
7. **Cuarenta A,** Bavley CC, Karbalaeei R, Famularo S, Wimmer ME, Bangasser DA. “The effect of resource scarcity early in life on the rat basolateral amygdala transcriptome” May 2022. NIDA GECCRT Meeting. Virtual. 2022.

Selected Poster Presentations

1. **Cuarenta A,** Karbalaeei R, Flowers JH, Hehn AT, Deckers CG, Dupuis MH, Roth SL, Ingram A, Famularo S, Wimmer ME, Bangasser DA. Scarcity early in life alters both the basolateral amygdala transcriptome and addiction-related behaviors. June 2023. Society for Behavioral Neuroendocrinology Annual Meeting. Tours, France.
2. **Cuarenta A,** Karbalaeei R, Flowers JH, Hehn AT, Deckers CG, Dupuis MH, Roth SL, Ingram A, Famularo S, Wimmer ME, Bangasser DA. “Scarcity early in life alters both the basolateral amygdala transcriptome and addiction-related behaviors” December 2022. American College of Neuropsychopharmacology Annual Meeting. Phoenix, AZ.
3. **Cuarenta A,** Karbalaeei R, Flowers JH, Hehn AT, Deckers CG, Roth SL, Dupuis MH, Ingram A, Famularo S, Wimmer ME, Bangasser DA. Early life adversity promotes resilience to cocaine addiction-like behaviors in males and produces sex-specific transcriptional changes in the basolateral amygdala. November 2022. Society for Neuroscience Annual Meeting. San Diego, CA.
4. **Cuarenta A,** Karbalaeei R, Flowers JH, Hehn AT, Deckers CG, Dupuis MH, Famularo S, Wimmer ME, Bangasser DA. “Resource scarcity effects on the basolateral amygdala transcriptome and basolateral amygdala related behaviors” June 2022. Society for Behavioral Neuroendocrinology Meeting. Atlanta, GA.
5. **Cuarenta A,** Bavley CC, Karbalaeei R, Famularo S, Wimmer ME, Bangasser DA. “Resource Scarcity alters the basolateral amygdala transcriptome in a sex specific manner” June 2022. International Behavioral Neuroscience Society Annual Meeting, Virtual.
6. **Cuarenta A,** Bavley CC, Karbalaeei R, Famularo S, Wimmer ME, Bangasser DA. “The effect of early life adversity on the basolateral amygdala transcriptome” December 2021. 60th Annual American College of Neuropsychopharmacology Meeting, San Juan, Puerto Rico.
7. **Cuarenta A,** Bavley CC, Karbalaeei R, Famularo S, Wimmer ME, Bangasser DA. “Early life adversity causes sex-specific transcriptional changes in the basolateral amygdala of rats” November 2021. 51st Annual Society for Neuroscience Meeting, virtual.
8. **Cuarenta A,** Karls KE, Henion IC, Kigar SL, Chang L, Bakshi VP, Auger AP. “Early life stress alters the transposable element, Line1 in a sex-specific manner” October 2019. 50th Annual Society for Neuroscience Meeting, Chicago, IL
9. **Cuarenta A,** Karls KE, Henion IC, Kigar SL, Chang L, Bakshi VP, Auger AP. “Long interspersing element 1 (Line1) shows alternate expression due to stress in a sex-specific pattern.” June 2019. Annual Society for Behavioral Neuroscience Meeting, Bloomington, IN.

10. **Cuarenta A**, Keese AP, Kigar SL, Chang L, Bakshi VP, Auger AP. "The influence of biological sex and early life stress on DNA topoisomerases in the developing amygdala." November 2017. 47th Annual Society for Neuroscience Meeting, Washington D.C.
11. **Cuarenta A**, Zahir N, Kigar SL, Chang L, Bakshi VP, Auger AP. "The influence of biological sex and early-life stress on the long non-coding RNA, Gomafu, within the developing neonatal and juvenile brain." November 2016. 46th Annual Society for Neuroscience Meeting, San Diego, CA.
12. **Cuarenta A**, Kosiolek E, Nixon A, Anderson K, Lee E. "Relations between partners' health indicators and dyadic coping among young adult dating couples" May 2012. Undergraduate Research Symposium, Madison, WI.

Undergraduate Student Mentoring

Margie Stricklin, Undergraduate Research Assistant	Present
Sydney Roth, Undergraduate Research Assistant	2022
Alexandra Hehn, Undergraduate Research Assistant	2021 – 2022
Caroline George, Undergraduate Research Assistant	2022
Yiru Shen ² , Undergraduate Research Assistant	2020
Ian Henion, Undergraduate Research Assistant	2018 – 2020
Tirhas Dempsey, Undergraduate Research Assistant	2019
Michael Rolfe, Undergraduate Research Assistant	2018 – 2019
Zahra Farahbakhsh ^{2,5} , Undergraduate Research Assistant	2017 – 2018
Clark Benson, Undergraduate Research Assistant	2016 – 2017
Mckenzie Borkovec ⁵ , Undergraduate Research Assistant	2016 – 2018
Kaitlyn Karls ⁶ , Undergraduate Research Assistant	2016 – 2018
Sarah Guagliardo ^{2,5} , Undergraduate Research Assistant	2015 – 2018
Molly Field ³ , Undergraduate Research Assistant	2018
Ash Fonjongo ¹ , Undergraduate Research Assistant	2016 – 2017
Ashley Keese ^{4,5} , Undergraduate Research Assistant	2015 – 2017
Nada Zahir ¹ , Undergraduate Research Assistant	2015
Alina Dain, Undergraduate Research Assistant	2014

1. Accepted into medical school; 2. Accepted into graduate school; 3. Accepted into nursing school;
4. Accepted into AmeriCorps; 5. Biology 152 mentored project; 6. Capstone/Thesis project

Mentored Student Awards

Diamond Research Scholars Fellowship, Temple University Awarded to Alexandra Hehn	2022
Outstanding Undergraduate Research Award, University of Wisconsin-Madison Awarded to Yiru Shen	2021
Outstanding Undergraduate Research Award, University of Wisconsin-Madison Awarded to Ian Henion	2020
Undergraduate Travel Award, University of Wisconsin-Madison Awarded to Ian Henion	2020
Outstanding Undergraduate Research Award, University of Wisconsin-Madison Awarded to Kaitlyn Karls	2018
Undergraduate Travel Award, University of Wisconsin-Madison Awarded to Kaitlyn Karls	2017

Journal Reviewer

Behavioral and Brain Functions	2022
Neuroscience and Biobehavioral Reviews	2022
Neurobiology of Stress	2021

Organization & Service

Present	Georgia State University Postdoctoral Association Programming Chair Atlanta, GA
2020- Present	Skype a Scientist Scientist Speaker
2021-2022	Temple University Postdoctoral Association Events Co-Chair Philadelphia, PA
2020-2021	Minnesota Strike Mentorship Program Mentor Minneapolis, MN
2018-2019	Diversity & Climate Committee Graduate Student Member University of Wisconsin-Madison, Psychology Department
2014-2016	Teen Support Group for the National Alliance on Mental Illness (NAMI) Group Facilitator NAMI of Dane County – Madison, WI

Professional Memberships

Georgia State University Postdoctoral Association	Present
National Center for Faculty Development & Diversity	2022 – Present
National Hispanic Science Network	2020 – Present
National Postdoctoral Association	2020 – Present
Temple University Postdoctoral Association	2020 – 2022
Society for Behavioral Neuroendocrinology	2019 – Present
UW-Madison Teaching Academy	2019 – 2021
Society for Neuroscience	2014 – Present

Career Development

Scientific Communication Advances Research Excellence Mentoring Workshop	2023
NIDA NDSN Program	2023
Instructor Development Workshop, Temple University	2022
SEE Grant Writing Workshop	2022
Temple University Coding Bootcamp	2022
Temple University's 20 th Annual Conference on Teaching Excellence	2022
ACNP Mentoring Workshop Program	2021
University of Wisconsin-Madison Diversity Forum	2020
Education Pathways Virtual Meeting, Latino Professionals Association, Inc	2020
Inclusive Teaching Workshop, University of Wisconsin-Madison	2020
Teaching and Learning Symposium, Teaching Academy, University of Wisconsin-Madison	2020
University of Wisconsin-Madison Diversity Forum	2019
Learning Environment and Pedagogics (LEAP) Workshop, University of Wisconsin- Madison	2019
Center for Research on Gender and Women Colloquium Series	2019
University of Wisconsin-Madison Diversity Forum	2018
Wisconsin Symposium on Feminist Biology	2018
Center for Research on Gender and Women Colloquium Series	2018
University of Wisconsin-Madison Diversity Forum	2016
University of Wisconsin Best Practices Teaching Symposium	2015