Mary "Allie" Holschbach

Assistant Professor of Behavioral Neuroscience

Department of Psychology and Neuroscience

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Education & Training

2015-2018 Postdoctoral Fellow in Biomedical Sciences
Postdoctoral Advisor: Dr. Robert J. Handa
Colorado State University, Fort Collins, CO

2017 NextProf Science: Future Faculty Workshop on Diversifying Academia
University of Michigan

2015 Ph.D. Neuroscience
Ph.D. Advisor: Dr. Joseph S. Lonstein
Michigan State University, East Lansing, MI
Dissertation: Peripartum plasticity in the serotonergic dorsal raphe: implications for postpartum socioemotional behavior and physiology

2015 Certificate in Diversity Inclusion and Sensitivity
Michigan State University, East Lansing, MI

2012 Congress MBL FAPESP USP Joint Course: "Neural Systems and Behavior," University of São Paulo / Brazil with the support of FAPESP (São Paulo Research Foundation)

2008 Continuing Education Course: "Neuroanatomy: Dissection of the human brain and spinal cord"
College of Health Sciences, Marquette University, Milwaukee, WI

2006-2010 B.S. Biology with an Option in Neurobiology
B.S. Psychology with Honors
University of Wisconsin, Madison, WI
Honors Thesis: Androgen responsiveness in *Peromyscus californicus.*

Awards and Honors

2019-2022 Faculty Research Fellowship, College of Psychology, NSU Florida

2019-2020 President's Faculty Research and Development Grant, NSU Florida

2015	Award-winning trainee presentation, Front Range Neuroscience
2013- 2015	NIH National Research Service Award
2014	Travel fellowship from MSU Graduate School to attend ICN/SBN
2014	Travel fellowship from MSU Neuroscience Program to attend IBNS
2013	Travel fellowship from MSU Graduate School to attend SBN
2012-2013	MSU Neuroscience Program Training Grant, Integrative Neurobiology of Social Processes – Predoctoral fellowship
2012	Travel fellowship MSU Council of Graduate Students to attend SfN
2012	Travel fellowship from MSU Neuroscience Program to attend SfN
2012	NSF Graduate Research Fellowship Program - Honorable Mention
2011	Travel fellowship from MSU Neuroscience Program to attend SfN
2010-2012	MSU Neuroscience Program Training Grant, Interdisciplinary Training Program in Neuroscience – Predoctoral fellowship
2010	Early Start Fellowship, MSU
2009	Summer Senior Honors Thesis Grant, UW Madison
2007, 2009-2010	Dean's List, University of Wisconsin – Madison

Teaching Experience

2019-pres	Assistant Professor, NEUR4880 Senior Seminar in Behavioral Neuroscience, Nova Southeastern University
2019-pres	Assistant Professor, NEUR3000 Behavioral Genetics, Nova Southeastern University
2019-pres	Assistant Professor, NEUR3200 Drugs and the Brain, Nova Southeastern University
2019-pres	Assistant Professor, NEUR2700 Research Methods in Behavioral Neuroscience, Nova Southeastern University
2019-pres	Assistant Professor, NEUR4990 Independent Study in Behavioral Neuroscience, Nova Southeastern University
2018-pres	Assistant Professor, NEUR2500 Intro to Neuroscience, Nova Southeastern University
2018-pres	Assistant Professor, NEUR3100 Developmental Neuroscience, Nova Southeastern University
2017	Guest Lecturer, BMS 425 Intro to Systems Neurobiology, Colorado State University

2016 Guest Lecturer, BMS 503 Developmental Neurobiology, Colorado State University

Representative Feedback from Students

"Professor Holschbach is an amazing professor who utilizes different forms of media throughout the semester to help students learn."

"Professor Holschbach is my favorite professor at NSU, and I have taken every course possible that she teachers because of how amazing of a professor she is. She truly cares for her students and has a fun teaching style."

"Professor Holschbach was incredibly understanding and helpful to several students in the class when it came to anything, whether we had trouble understanding a subject or topic or if we had problems at home or with mental health, she was always ready to offer her time for us and truly make us feel motivated to do better in her course on our own. So far, she is the best professor I have had at NSU and I am very excited to take her next semester."

"I loved how we were able to discuss every class about the research articles, and openly discuss if we didn't understand something and figure out the misunderstood piece together. This class broadened my scope on not only research but also my skills in being able to write better as a researcher in progress."

"Professor Holschbach is by far my favorite professor at Nova! This is my second semester having her and she is so great at her job. She clearly explains topics and connects them to previous knowledge about neuro. 10/10 recommend"

"Great professor!! Excellent methods of teaching used. I learned a lot! She successfully implemented hands-on learning for better understanding."

"You're a really fun professor so it made the class so much more engaging. Also you sharing your background in research was inspiring for an aspiring researcher as myself!"

"Throughout my time at Nova Southeastern University, Professor Holschbach has been the most influential professor of my academic career. Her passion and enthusiasm for the field of neuroscience is evident in everything she does."

"She has always believed in her students' abilities to learn and improve and has always gone the extra mile for students. In numerous courses, Professor Holschbach s also expanded the curriculum to incorporate students' interests. As a professor, Dr. Holschbach repeatedly fosters engaging and thought-provoking discussions."

"Dr. Allie Holschbach is nothing less than the most exceptional professor I have ever as a student had. If not for her, I would most certainly not be continuing my education at NSU."

Research Experience

2018-pres	Assistant Professor, Research in Behavioral Neuroendocrinology: (1) Neuroendocrine and behavioral effects of winning competitions in women and female rats; (2) Sculpting of the epigenome by lineage and social transmission; (3) Effects of social stress on neural and behavioral response to TBI in young adult male rats, Nova Southeastern University
2015-pres	Postdoctoral Research Assistant to Dr. Bob Handa, Biomedical Sciences, Colorado State University
2015-pres	Research mentor to undergraduate trainees in the Handa laboratory, Colorado State University
2010-2015	Research Assistant to Dr. Joe Lonstein, Neuroscience Program, Michigan State University
2010-2015	Research mentor to undergraduate and graduate trainees in the Lonstein laboratory, Michigan State University
2012	Teaching Assistant & Guest Lecturer, PSY 209 Brain and Behavior, Michigan State University
2010	Research Assistant to Dr. Cheryl Sisk, Neuroscience Program, Michigan State University
2008-2010	Undergraduate Research Assistant to Dr. Catherine Marler, Dept. of Psychology and Neuroscience Training Program, University of Wisconsin
2006-2008	Laboratory Intern, DuPont Danisco, Waukesha, WI 53186
2007	Undergraduate Research Assistant to Dr. Thomas Sutula, Dept. of Neurology, University of Wisconsin

Leadership Experience and Professional Service

2019- pres	Faculty Mentor for Nu Rho Psi-Beta in Florida, local chapter of a national honors society in neuroscience
2018-pres	Behavioral Neuroscience Curriculum Committee
2018-pres	Brain Awareness Committee
2019	Ad hoc reviewer for Aggression and Violent Behaviors
2017	Hosted invited speaker for CSU Postdoctoral Association's seminar series
2016	Interviewer in search for Associate Dean of the Graduate School, Colorado State University
2016	Presenter, Brain Awareness Week, Colorado State University

2015-2018	Founding Member and Vice President of Advocacy for Colorado State University's Postdoctoral Association
2015-2018	Poster judge for 4 internal CSU conferences
2015-2016	Poster judge for Front Range Neuroscience Group (SfN local chapter) conference
2014-2015	President, MSU Neuroscience Program Graduate Student Council
2010-2015	Presenter, Brain Awareness Week, Michigan State University
2010-2015	Hosted 3 invited speakers for the Neuroscience Program's seminar series at Michigan State University
2010-2013	Presenter, Brain Bee, Michigan State University
2011-2013	Neuroscience Program Representative, Council of Graduate Students at Michigan State University
2010-2012	Class Representative, Neuroscience Program Graduate Student Council at Michigan State University

Publications

Moguel M, George A, Holschbach MA (2020). How to make a winner: how hormones and experience shape the brain of the victor. *Journal of the Society for Neurosports.*

Coley, EJL, Demaestri, C, Ganguly, P, Honeycutt, JA, Peterzell, S, Ahmed, N, **Holschbach, MA**, Trivedi, M, Brenhouse, HC (2019). Cross generational transmission of early life stress effects on HPA regulators and *bdnf* are mediated by sex, lineage, and upbringing. *Frontiers in Behavioral Neuroscience*

Holschbach MA[1], Grieb ZA[1], Lonstein JS (2018). Interaction between postpartum stage and litter age on maternal caregiving and medial preoptic area orexin. *Physiology and Behavior* 194: 430-436. Cofirst authors[1]

Holschbach MA, Vitale EM, Lonstein JS (2018). Serotonin-specific lesions of the dorsal raphe disrupt maternal aggression and caregiving in postpartum rats. *Behavioral Brain Research* 348:53-64.

Holschbach MA, Borrow AP, Handa RJ (2017). Honing in on hormone sensitive neural targets for therapeutic intervention: Mission impossible? *Future Science OA 3(3).*

Holschbach, MA, Lonstein, JS (2017). Motherhood and infant contact regulate neuroplasticity in the serotonergic midbrain dorsal raphe. *Psychoneuroendocrinology* (76) 97-106.

Holschbach MA, Handa RJ. Androgen Action and Stress. In: Fink G., ed. *Stress: Neuroendocrinology and Neurobiology* (2017) 227–235. Academic Press.

Rosetti, MF, Cambiasso, MJ, **Holschbach, MA,** Cabrera, R (2016). Oestrogens and progestagens: syntheses and action in the brain. *Journal of Neuroendocrinology 28(7).*

Smith, CD, **Holschbach, MA**, Olsewicz, J, Lonstein, JS (2012). Noradrenergic alpha-2 receptor antagonism in the ventral bed nucleus of the stria terminalis and medial preoptic area impairs maternal care in female rats. *Psychopharmacology 224(2):263-276.*

Gleason, ED, **Holschbach, MA**, Marler, CA (2012). Females investigate males with higher testosterone, but compatibility drives female preference and reproductive success in the monogamous California mouse (Peromyscus californicus). *Hormones and Behavior* 61(1):100-107.

Prepared and Submitted Manuscripts

Holschbach, MA, Turnidge, AL, Handa, RJ (in prep). Acutely activating glucocorticoid receptors increases transcription of serotonin-related mRNA transcripts in the dorsal raphe.

Holschbach, MA, Anderson TL, Handa, RJ (in prep). Developmental expression of estrogen receptor beta in the prefrontal cortex of male and female mice.

Oral Presentations

Holschbach, MA. Mother's Milk: Distinctions with differences. Bigger, Smarter, Sexier Science Data Blitz. Fort Lauderdale, FL. September 2018.

Holschbach, MA, Lonstein, JS. Lesioning the serotonergic dorsal raphe reduces postpartum aggression and alters caregiving behaviors in postpartum rats. Front Range Neuroscience Group. Fort Collins, CO. December 2015.

Holschbach, MA, Lonstein, JS. "Postpartum neuroplasticity in the midbrain serotonergic dorsal raphe: potential mechanism for adaptations in maternal behavior and physiology." Society for Neuroscience. Washington D.C. November 2014.

Holschbach, MA, Lonstein, JS. "Social and endocrine factors drive postpartum neuroplasticity in the serotonergic dorsal raphe." Society for Behavioral Neuroendocrinology / International Congress of Neuroendocrinology. Sydney, Australia. August 2014.

Poster Presentations

Moguel, M, George, A, **Holschbach, MA.** "How to make a winner: how hormones and experience shape the brain of the victor." Society for Neurosports. Deerfield Beach, FL. November 2019.

Holschbach, MA, Turnidge, AL, Handa, RJ. "Acute Activation of Glucocorticoid Receptors Increases Transcription of Serotonin-Related mRNA Transcripts in the Dorsal Raphe." Endocrinology. Orlando, FL. April 2017.

Holschbach, MA, Handa, RJ. Developmental expression of Estrogen Receptor Beta in the dorsal raphe and prefrontal cortex of male and female mice. Society for Neuroscience. San Diego, CA. November 2016.

Vitale, EV, **Holschbach, MA**, Lonstein, JS. Lesioning the serotonergic dorsal raphe alters various aspects of maternal behavior. Society for Neuroscience. San Diego, CA. November 2016.

Holschbach, MA, Handa, RJ. Previous anxiogenic experience buffers effects of forced swim test: potential role for Estrogen Receptor Beta in the Dorsal Raphe. Neurobiology of Stress. Newport Beach, CA. April 2016.

Holschbach, MA, Vitale, EV, Lonstein, JS. Postpartum lesions targeting serotonergic neurons in the dorsal raphe alter various aspects of maternal behavior. Society for Neuroscience. Chicago, IL. October 2015.

Holschbach, MA, Vitale, EV. Lonstein, JS. Serotonin-specific lesions of the dorsal raphe alter nursing, reduce licking, and reduce aggression in postpartum rats. International Workshop on Neuroendocrinology. Mendoza, Argentina. August 2015.

Holschbach, MA, Vitale, EV, Lonstein, JS. Serotonin-specific lesions of the dorsal raphe impair caregiving, increase anxiety, and reduce aggression in postpartum rats. Society for Behavioral Neuroendocrinology. Pacific Grove, CA. June 2015.

Lonstein, JS, **Holschbach, MA,** Grieb, ZA. "Maternal and litter factors interact to influence postpartum caregiving, anxiety, and midbrain tryptophan hydroxylase 2 expression." Society for Neuroscience. Washington D.C. November 2014.

Ragan, CM, **Holschbach, MA,** Lonstein, JS. "Association between brain delta FosB protein expression and maternal experience in female rats." Society for Neuroscience. Washington D.C. November 2014.

Holschbach, MA, Grieb, ZA, Lonstein, JS. "Postpartum stage and litter age interact to affect postpartum socioemotional behaviors and midbrain tryptophan hydroxylase 2 expression." Society for Behavioral Neuroendocrinology. Sydney, Australia. August 2014.

Ragan, CM, **Holschbach, MA,** Lonstein, JS. "Differential expression of Fos-family proteins in maternal and nonmaternal brain." Society for Behavioral Neuroendocrinology. Sydney, Australia. August 2014.

Holschbach, MA, Lonstein, JS. "Reproduction and maternal experience alter neuroplasticity in the midbrain dorsal raphe." International Behavioral Neuroscience Society. Las Vegas, Nevada. June 2014.

Ragan, CM, **Holschbach, MA,** Lonstein, JS. "Differential expression of Fos-family proteins in maternal and nonmaternal brain." International Behavioral Neuroscience Society. Las Vegas, Nevada. June 2014.

Holschbach, MA, Lonstein, JS. "Effects of reproductive experience on cell proliferation and survival in the midbrain of adult, female rats." Society for Neuroscience. New Orleans, Louisiana. Oct 2012.

Holschbach, MA, Lonstein, JS. "Cell proliferation/survival in the dorsal raphe across reproductive states in female rats." Society for Behavioral Neuroendocrinology. Madison, WI. June 2012.

Holschbach, MA, Lonstein, JS. "Diminished norepinephrine release in the BSTv decreases anxiety but does not promote maternal behavior in nulliparous female rats." Society for Neuroscience. Washington DC. Nov 2011.

Holschbach, MA, Lonstein, JS. "Cell proliferation in the dorsal raphe of pregnant and lactating rats." Workshop on Prosocial Behavior. Atlanta, Georgia. Oct 2011.

Memberships in Professional Societies

2019-present	Society of NeuroSports
2019-present	Nu Rho Psi, National Honor Society in Neuroscience
2017-present	Endocrine Society
2015-present	International Workshop for Neuroendocrinology
2013-present	International Behavioral Neuroscience Society
2011-present	Society for Behavioral Neuroendocrinology
2010-present	Society for Neuroscience