

## **CURRICULUM VITAE**

### **John Meitzen, Ph.D.**

Alumni Distinguished Undergraduate Professor

University Faculty Scholar

Coordinator: B.S in Biology, Integrative Physiology and Neurobiology Concentration

Dept. of Biological Sciences

North Carolina State University

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### **Education**

B.A. with Honors, Biology and Plan II Honors Interdisciplinary Liberal Arts and Science,  
University of Texas at Austin, 1998-2002

Ph.D., Program in Neurobiology and Behavior, University of Washington, 2002-2008

Postdoctoral Fellow, Dept. of Neuroscience, University of Minnesota, 2009-2012

Grass Fellow, Neurophysiology, Marine Biological Laboratory, 2011

### **Appointment**

Professor with Tenure, Dept. of Biological Sciences, North Carolina State University,  
2023-Present

Associate Professor with Tenure, Dept. of Biological Sciences, North Carolina State University,  
2018-2023

Assistant Professor, Dept. of Biological Sciences, North Carolina State University, 2013-2018

### **Honors**

Alumni Distinguished Undergraduate Professor, NC State University, 2024

Advisor Development Institute Certificate, NC State University, 2024

Top Cited Article Awards 2020-2021 and 2021-2022, *The Journal of Comparative Neurology*,  
2022, 2023

Alumni Association Outstanding Teacher Award and induction into the Academy of Outstanding  
Teachers, NC State University, 2020

University Faculty Scholar, award for emerging academic leaders, NC State University, 2018

APSselect Award for distinction in scholarship in the *Journal of Neurophysiology* for Willett et  
al., 2018

Next Generation Award, Society for Neuroscience, 2016

*Endocrinology* Best Reviewer of the year, 2015

NCSU nominee for the Pew Biomedical Scholars and Mallinckrodt grant programs, 2015

Corporation Member, Marine Biological Laboratory, (Now renamed MBL Society.), 2013  
 Elizabeth A. Young New Investigator, Organization for the Study of Sex Differences, 2010  
 Young Investigator Award, Workshop on Steroid Hormones and Brain Function, 2008  
 Full Membership, Sigma Xi, 2008  
 Congress Award, International Society for Neuroethology, 2007  
 Best Poster Award, Pacific Cascade Chapter of the Society for Neuroscience Annual Meeting,  
 Seattle, WA. 2007  
 National Science Foundation, Graduate Research Fellow, 2004-2006  
 Honorable Mention, Howard Hughes Predoctoral Fellowship Competition, 2003  
 Honorable Mention, NSF Graduate Research Fellowship Competition, 2003  
 Dean's Honored Graduate for Research, Academics and Service, College of Natural Science,  
 University of Texas at Austin, 2002  
 Phi Beta Kappa, 2002  
 Student Scholar Award, University of Texas Medical Branch School of Biomedical Sciences,  
 2000

### **Current Grant Support**

U01ES035843, NIH NIEHS, 07/02/2024-06/30/2029. Neurodevelopmental effects of flame retardant exposure, PI: Meitzen, total direct costs: \$1,354,740.

R01MH125806, NIH NIMH, 03/22-02/27; Oxytocin neural circuitry involvement in juvenile social play. Subcontract PI: Meitzen at NC State, Overall PI: Veenema at Michigan State, total direct costs to Meitzen lab: \$100,000

SC1 GM139696, NIH NIGMS, 08/01/22-07/31/25, Consultant. Primary PI: Dr. S. Alex Marshall at NCCU.

U01ES031419, NIH NIEHS, 07/07/24 – 3/31/2025, Flame retardant effects on thyroid hormone regulation at the fetal-maternal interface of the placenta, Subcontract PI: Meitzen at NC State, Overall PI: Heather Stapleton at Duke, total direct costs to Meitzen lab: \$364,067.28

### **Past Grant/Fellowship Support**

5R03ES033825-02, NIH NIEHS, 06/30/2023-06/30/2024. Piloting a Novel Approach for Examining Intersecting Environmental Exposures and Social Behavior. Primary PI: Meitzen at NC State, total direct costs: \$50,000

5R01ES028110-05, NIH NIEHS, 08/01/2022 – 07/32/2024. The placenta: a novel target of sex specific neurotoxicity by fire retardants. Primary PI: Meitzen at NC State, total direct costs \$331,949

R01MH109471, NIH NIMH, 05/2016-03/2023, PI: Meitzen, total direct costs \$1,250,000

CMI Research Equipment Grant, 04/2023-06/2023, NC State University via CMI, Primary PI: Sombers; co-PIs: Xiao, Meitzen, Patisaul, total direct costs \$41,275.

Beckman Scholar Chemistry of Life Award Mentor Stipend Funds, NC State University via Beckman Foundation, 05/2021-05/2023, PI: Pierce; Mentor: Meitzen, total direct costs \$7,800

Alt-Textbook Open Textbook Project Grant, 04/22-08/22; NC State University Libraries, PI: Meitzen, total direct costs \$200

Faculty Research and Professional Development Award, NC State University, 07/2020-06/2021, PI: Meitzen, total direct costs \$6,000

CHHE Pilot Project, 07/2019-06/2020, PI: Meitzen, Associate PI: Patisaul NC State University, total direct costs \$25,000

NC State University Startup Funds, 01/2013-06/2020, PI: Meitzen, total direct costs \$600,000

STEM Education Initiative, NC State University, 11/5/2018-05/15/2019, total direct costs \$1,500

Laboratory Research Equipment Program, NC State University, 11/2017-06/2018, Lead PI: Meitzen, Co-PIs: Benjamin Reading, Russell Borski, Heather Patisaul, total direct costs \$12,236.

Biotechnology Event Sponsorship for the 3rd Annual Spring Neuroscience Conference, North Carolina Biotechnology Center, 04/03/2017 – ~09/2017, total direct costs \$1250

RISF Award, NC State University, Pins #66748, 01/01/2016-12/31/2016, co-PIs: Troy Ghashghaei, John Meitzen, Mansoor Haider, total direct costs: \$34550, Meitzen portion \$9739

Faculty Research and Professional Development Award, NC State University, 07/2015-05/2016, PI: Meitzen, total direct costs \$4,000

Army Research Office STIR Award W911NF-15-1-0476, Dept. of Defense, 08/2015-05/2016, total direct costs \$50,000

Center for Comparative Medicine and Translational Research and College of Veterinary Medicine, NC State University, Phase II Funding, Critical Issues in Clinical Research Pilot Project, “Early Detection and Neurological Mechanisms of Fescue Toxicosis”, 2015, Co-PI: Meitzen, total direct costs \$15,000

Center for Comparative Medicine and Translational Research, Critical Issues in Clinical Research Meet and Greet Proposal, 2014

Grass Foundation Fellowship, Grass Foundation, 2011

NRSA, NIH NIDA Individual Post-Doctoral Fellowship, F32 DA030828, 2011

NRSA, NIH Institutional Training Grant for Neuroscience Training in Drug Abuse, University of Minnesota, 2009-2010

NRSA, NIH Institutional Training Grant for Neurobiology, U. of Washington, 2007-2008

National Science Foundation, Graduate Research Fellow, 2004-2006

Undergraduate Research Fellowship, University of Texas at Austin, 2001, 2002

Multiple Travel Grants: Plan II, SBN, GSFEI, SBN, WiNGS, spanning 2001-2013

### **Society Affiliations and Service**

Society for Neuroscience (National level and Research Triangle Chapter)(2004-Present)  
 Research Triangle Chapter: President (2018-2020) Nominations Committee (2015-2021), President Elect (2016-2018), Member of the Program Committee (2014-2015). National level: Moderator/Organizer, Professional Development Workshop (2017); Chair, Minisymposium (2018); Member of the Trainee Professional Development Awards (TPDA) Selection Committee (2023-2025)

Society for Behavioral Neuroendocrinology (2008-Present)  
 Member of the Secretary Nominating Committee (2024), Awards Committee (2019-2023), Program Committee (2015-2018); Annual meeting poster judge (2022, 2019, 2015, 2013).

Organization for the Study of Sex Differences (2011-2020, 2022-2023)

Awards Committee Member (2022-2023,2020), Chair, “Sex-specific Outcomes of Environmental Chemical Exposures” session (2018)  
 The Endocrine Society (2013-2018)  
 Member of the Editorial Board for Endocrinology (2016-2018)

### **Peer-Reviewed Publications**

57. Godley FA, **Meitzen J**, Nahman-Averbuch MA, O’Neal MA, Yeomans D, Santoro N, Riggins N, Edvinsson L. 2024. How Sex Hormones Affect Migraine. An Interdisciplinary Preclinical Research Panel Review. *Journal of Personalized Medicine*. 14: 184. *Special issue “New Challenges and Perspectives in Neurology and Autonomic Disorders.”* [Abstract.](#)
56. Proano SB, Miller CK, Krentzel AA, Dorris DM, **Meitzen J**. 2024 Sex steroid hormones, the estrous cycle, and rapid modulation of glutamatergic synapse properties in the striatal brain regions with a focus on 17 $\beta$ -estradiol and the nucleus accumbens. *Steroids*. 201: 109344. *Special Issue “Proceedings of the 12th International Meeting on Rapid Responses to Steroid Hormones (RRSH), co-organized with FASEB (Steroid Hormones and Receptors in Health and Disease.”* [Abstract.](#)
55. Kimble LC, Twiddy JS, Berger J, Forderhase AG, McCarty GS, **Meitzen J**, Sombers LA. 2023. Simultaneous, Real-Time Detection of Glutamate and Dopamine in Rat Striatum Using Fast-Scan Cyclic Voltammetry. *ACS Sensors*. 8(11):4091-4100. [Abstract.](#)
54. Seib DR, Tobiansky DJ, **Meitzen J**, Floresco SB, Soma KK. 2023. Neurosteroids and the mesocorticolimbic system. *Neuroscience and Biobehavioral Reviews*. 153:105356. *Invited manuscript, special issue on “Special Issue on Neurosteroids in Neuropsychiatry.”* [Abstract.](#)
53. Miller CK, **Meitzen J**. 2023. Measurements of anxiety-related and locomotor behaviors in adult ovariectomized female rats exposed to estradiol, the ER $\beta$  agonist DPN or the ER $\alpha$  agonist PPT. *Hormones and Behavior*. 152: 05363. *Special Issue “Highlights of the 2022 SBN Conference.”* [Abstract.](#)
52. Long AS, Reich BJ, Staicu AM, **Meitzen J**. 2023. Nonparametric Test of Group Distributional Differences for Hierarchically-Clustered Functional Data. *Biometrics*. 79:3778-3791. [Abstract.](#)
51. Miller CK\*, Krentzel AA\*, **Meitzen J**. 2023. ER $\alpha$  stimulation rapidly modulates excitatory synapse properties in female rat nucleus accumbens core. *Neuroendocrinology*. 113:1140-1153. *Special issue on “The Role of Gonadal Steroids in Substance Abuse Disorders.”* \*These authors made equal contributions. [Abstract.](#)
50. Beeson ALS, **Meitzen J**. 2023. Estrous cycle impacts on dendritic spine plasticity in rat nucleus accumbens core, shell, and caudate-putamen. *Journal of Comparative Neurology*. 531:75-774. [Abstract.](#)
49. Krentzel AA, Proano SB, Dorris DM, Setzer B, **Meitzen J**. 2022. The estrous cycle and 17 $\beta$ -estradiol modulate the electrophysiological properties of rat nucleus accumbens core medium spiny neurons. *Journal of Neuroendocrinology*. 34:e13122. Review. [Abstract.](#)
48. Krentzel AA, Kimble LC, Dorris DM, Horman BM, **Meitzen J**, Patisaul HB. 2021. FireMaster® 550 (FM 550) exposure during the perinatal period impacts partner preference behavior and nucleus accumbens core medium spiny neuron electrophysiology in the adult prairie vole, *Microtus ochrogaster*. *Hormones and Behavior*. 134: 105019. [Abstract.](#)

47. Cao J, **Meitzen J**. 2021. Perinatal activation of ER $\alpha$  and ER $\beta$  but not GPER-1 masculinizes female rat caudate-putamen medium spiny neuron electrophysiological properties. *Journal of Neurophysiology*. 125: 2322-2338. [Abstract](#).
46. Miller CK, Halbing AA, Patisaul HB, **Meitzen J**. 2021. Interactions of the estrous cycle, novelty, and light on female and male rat open field locomotor and anxiety-related behaviors. *Physiology and Behavior*. 228:113203. [Abstract](#).
45. Krentzel AA, Willett JA, Johnson AG, **Meitzen J**. 2021. Estrogen receptor alpha, g-protein coupled estrogen receptor 1, and aromatase: developmental, sex, and region-specific differences across the rat caudate-putamen, nucleus accumbens core and shell. *Journal of Comparative Neurology*. 529:786-801. [Abstract](#). \*Top Cited Article 2020-2021 and 2021-2022 in the *Journal of Comparative Neurology Awards*
44. Willett JA, Cao J, Johnson A, Patel OH, Dorris DM, **Meitzen J**. 2020. The estrous cycle modulates rat caudate-putamen medium spiny neuron physiology. *European Journal of Neuroscience*. 52: 2737-2755. \*Invited Manuscript for the Special Issue on “Sex Differences in Neuroscience and Neuropharmacology” [Abstract](#).
43. Proano SB, **Meitzen J**. 2020. Estradiol decreases medium spiny neuron excitability in female rat nucleus accumbens core. *Journal of Neurophysiology*. 123:2465-2475. [Abstract](#).
42. Proano SB, Krentzel AA, **Meitzen J**. 2020. Differential and synergistic roles of 17 $\beta$ -estradiol and progesterone in modulating adult female rat nucleus accumbens core medium spiny neuron electrophysiology. *Journal of Neurophysiology*. 123:2390-2405. [Abstract](#).
41. Mamlouk GM, Dorris DM, Barrett LR, **Meitzen J**. 2020. Sex bias and omission in neuroscience research is influenced by research model and journal, but not reported NIH funding. *Frontiers in Neuroendocrinology*. 57:100835. Invited review for the Special Issue on “Beyond Sex Differences: A Spotlight on Women's Brain Health.” [Abstract](#).
40. Krentzel AA, Proano SB, Patisaul HB, **Meitzen J**. 2020. Temporal and bidirectional influences of estradiol on voluntary wheel running in adult female and male rats. *Hormones and Behavior*. 120:104694. [Abstract](#).
39. Miller CK, Krentzel AA, Patisaul HB, **Meitzen J**. 2020. Metabotropic glutamate receptor subtype 5 (mGlu5) is necessary for estradiol mitigation of light-induced anxiety behavior in female rats. *Physiology and Behavior*. 220:112770. [Abstract](#).
38. Tonn KR, Mermelstein PG, **Meitzen J**. 2020. Estrogen receptors at the membrane: Interactions with metabotropic glutamate receptors and caveolin proteins regulated through palmitoylation. Book Chapter, Review. In: *Estrogens and Memory: Basic Research and Clinical Implications*. Oxford University Press. [Abstract](#).
37. Krentzel AA, Barrett LR, **Meitzen J**. 2019. Estradiol rapidly modulates excitatory synapse properties in a sex and region-specific manner in rat nucleus accumbens core and caudate-putamen. *Journal of Neurophysiology*. 122:1213-1225. [Abstract](#). \*\*Article highlighted on the *Journal of Neurophysiology* website and featured in a [podcast](#).
36. Willett JA, Cao J, Dorris DM, Johnson AG, Ginnari LA, **Meitzen J**. 2019. Electrophysiological properties of male and female medium spiny neuron subtypes in the caudate putamen of Drd1a-tdTomato line 6 BAC transgenic mice. *eNeuro*. 6(2) e0016-19.2019. [Abstract](#).
35. **Meitzen J**, Britson KA, Tuomela K, Mermelstein PG. 2019. The expression of select genes necessary for membrane-associated estrogen receptor signaling differ by sex in adult rat hippocampus. *Steroids*. 142: 21-27. [Abstract](#).

34. Krentzel AA, **Meitzen J.** 2018. Sex-specific influences of estradiol across development on striatal medium spiny neurons. *Frontiers in Cellular Neuroscience.* 12:492. Review. [Abstract.](#)
33. Tonn Eisinger KR, Woolfrey K, Swanson S, Schnell S, **Meitzen J,** Dell'Acqua M, Mermelstein PG. 2018. Palmitoylation of Caveolin-1 is regulated by the same DHHC enzymes as steroid hormone receptors. *Journal of Biological Chemistry.* 293:15901-15911. [Abstract.](#)
32. Cao J, Dorris DM, **Meitzen J.** 2018. Electrophysiological properties of medium spiny neurons in the nucleus accumbens core of prepubertal male and female Drd1a-tdTomato line 6 BAC transgenic mice. *Journal of Neurophysiology.* 120:1712-1727. [Abstract.](#) \*Article selected for social media promotion by *Journal of Neurophysiology.*
31. Proano SB, Morris HJ, Kunz LM, Dorris DM, **Meitzen J.** 2018. Estrous cycle-induced sex differences in medium spiny neuron excitatory synaptic transmission and intrinsic excitability in adult rat nucleus accumbens core. *Journal of Neurophysiology.* 120: 1356-1373. [Abstract.](#) \*\*Article highlighted on the *Journal of Neurophysiology* website and featured in a [podcast.](#)
30. **Meitzen J,** Meisel RL, Mermelstein PG. 2018. Sex differences and the effects of estradiol on striatal function. *Current Opinion in Behavioral Sciences.* 23: 42-48. Review. [Abstract.](#)
29. Cao J, Willett JA, Dorris DM, **Meitzen J.** 2018. Sex differences in medium spiny neuron excitability and glutamatergic synaptic input: heterogeneity across striatal regions and evidence for estradiol-dependent sexual differentiation. *Frontiers in Endocrinology.* 9:173. [Abstract.](#) Review.
28. Willett JA, Johnson AG, Vogel AR, Patisaul HB, McGraw LA, **Meitzen J.** 2018. Nucleus accumbens core medium spiny neuron electrophysiological properties and partner preference behavior in the adult male prairie vole, *Microtus ochrogaster.* *Journal of Neurophysiology.* 119: 1576 –1588. [Abstract.](#) \*Article awarded the APSselect designation “For distinction in scholarship in the *Journal of Neurophysiology.*” \*\*Article featured in a [podcast](#) from the *Journal of Neurophysiology.*
27. Montiel C, **Meitzen J.** 2017. Interviewing neuroscientists for an undergraduate honors project. *Journal of Undergraduate Neuroscience Education.* 16: A89-A94. [Abstract.](#)
26. Will TR, Proano SB, Thomas AM, Kunz LM, Thompson KC, Ginnari LA, Jones CH, Lucas S, Reavis EM, Dorris DM, **Meitzen J.** 2017. Problems and progress regarding sex bias and omission in neuroscience research. *eNeuro.* 4:e0278-17.2017. [Abstract.](#) \*Article chosen for highlighting on social media by *eNeuro.*
25. Wong JE, Cao J, Dorris DM, **Meitzen J.** 2016. Genetic sex and the volumes of the caudate-putamen, nucleus accumbens core and shell: original data and a review. *Brain Structure and Function.* 221: 4257-4267. [Abstract.](#)
24. Cao J, Dorris DM, **Meitzen J.** 2016. Neonatal masculinization blocks increased excitatory synaptic input in female rat nucleus accumbens core. *Endocrinology.* 157:3181-96. [Abstract.](#)
23. Willett JA, Will TR, Hauser CA, Dorris DM, Cao J, **Meitzen J.** 2016. No evidence for sex differences in the electrophysiological properties and excitatory synaptic input onto nucleus accumbens shell medium spiny neurons. *eNeuro.* 3:ENEURO.0147-15.2016. [Abstract.](#)
22. **Meitzen J.** 2015. Using Tinbergen’s four questions as the framework for a neuroscience capstone course. *Journal of Undergraduate Neuroscience Education.* 14:A46-A55. [Abstract.](#)



21. Dorris DM, Cao J, Willett JA, Hauser CA, **Meitzen J**. 2015. Intrinsic excitability varies by sex in pre-pubertal striatal medium spiny neurons. *Journal of Neurophysiology*. 113:720-729. [Abstract](#).
20. **Meitzen J**. 2014. Review of: Neurobiology of Monotremes (ed. Ken Ashwell), CSIRO Publishing, Collingwood, Australia, 2013. *Integrative and Comparative Biology*. 54: 87-88. [Abstract](#)
19. Dorris DM, Hauser CA, Minnehan CE, **Meitzen J**. 2014. An aerator for brain slice experiments in individual cell culture plate wells. *Journal of Neuroscience Methods*. 238: 1-10. [Abstract](#)
18. **Meitzen J**, Luoma JI, Boulware MI, Hedges VL, Peterson BM, Tuomela K, Britson KA, Mermelstein PG. 2013. Palmitoylation of estrogen receptors is essential for neuronal membrane signaling. *Endocrinology*. 154: 4293-4304. [Abstract](#).
17. **Meitzen J**, Perry AN, Westenbroek C, Hedges VL, Becker JB, Mermelstein PG. 2013. Enhanced striatal  $\beta$ 1-adrenergic receptor expression following hormone loss in adulthood is programmed by both early sexual differentiation and puberty: a study of humans and rats. *Endocrinology*. 154: 1820-1831. [Abstract](#).
16. **Meitzen J**, Grove DD, Mermelstein PG. 2012. The organizational and aromatization hypotheses apply to rapid, non-classical hormone action: neonatal masculinization eliminates rapid estradiol action in female hippocampal neurons. *Endocrinology*. 153 4616-4621. [Abstract](#).
15. Thompson CK\*, **Meitzen J**\*, Replogle K, Drnevich J, Lent KL, Wissman AM, Farin F, Bammler TK, Beyer RP, Clayton DF, Perkel DJ, Brenowitz EA. 2012. Seasonal Changes in Patterns of Gene Expression in Avian Song Control Brain Regions. *PLoS One*. 7: e35119. \*Co-first authors. [Abstract](#).
14. **Meitzen J**, Mermelstein PG. 2011. Estrogen receptors stimulate brain region specific metabotropic glutamate receptors to rapidly initiate signal transduction pathways. *Journal of Chemical Neuroanatomy*. 42:236-241. Review. [Abstract](#).
13. Stern CM, **Meitzen J**, Mermelstein PG. 2011. Corticotropin-releasing factor and urocortin I activate CREB through functionally selective G $\beta$  $\gamma$  signaling in hippocampal pyramidal neurons. *European Journal of Neuroscience*. 34:671-81. [Abstract](#).
12. Stern CM, Luoma JI, **Meitzen J**, Mermelstein PG. 2011. Corticotropin Releasing Factor-Induced CREB Activation in Striatal Neurons Occurs via a Novel G $\beta$  $\gamma$  Signaling Pathway. *PLoS One*. 6(3): e18114. [Abstract](#).
11. **Meitzen J**, Stern CM, Luoma JI, Mermelstein PG. 2011.  $\beta$ 1-adrenergic receptors activate two distinct signaling pathways in striatal neurons. *Journal of Neurochemistry*. 116: 984-995. [Abstract](#).
10. **Meitzen J**, Pfllepsen KR, Stern CM, Meisel RL, Mermelstein PG. 2011. Measurements of neuron soma size and density in rat dorsal striatum, nucleus accumbens core and nucleus accumbens shell: differences between striatal region and brain hemisphere, but not sex. *Neurosci Letters*. 487: 177-181. [Abstract](#).
9. **Meitzen J**, Weaver AL, Brenowitz EA, Perkel DJ. 2009. Plastic and stable electrophysiological properties of adult avian forebrain song-control neurons across changing breeding conditions. *Journal of Neuroscience*. 29:6558-6567. [Abstract](#).
8. **Meitzen J**, Thompson CK, Choi H, Perkel DJ, Brenowitz EA. 2009. Time course of changes in Gambel's white-crowned sparrow song behavior following transitions in breeding condition. *Hormones and Behavior*. 55: 217-227. [Abstract](#).

7. **Meitzen J\***, Thompson CK\*. 2008. Seasonal-like growth and regression of the avian song control system: neural and behavioral plasticity in adult male Gambel's white-crowned sparrows. *General and Comparative Endocrinology*. 157: 259-265. \*Co-first authors with Thompson CK. Review. [Abstract](#).
6. **Meitzen J**, Moore IT, Lent K, Brenowitz EA, Perkel DJ. 2007. Steroid hormones act transsynaptically within the forebrain to regulate neuronal phenotype and song stereotypy. *Journal of Neuroscience*. 27: 12045-12057. [Abstract](#).
5. **Meitzen J**, Perkel DJ, Brenowitz EA. 2007. Seasonal changes in intrinsic electrophysiological activity of song control neurons in wild song sparrows. *Journal of Comparative Physiology A*. 193:677-683. [Abstract](#).
4. Xie R, **Meitzen J**, Pollak GD. 2005. Differing Roles of Inhibition in Hierarchical Processing of Species-Specific Calls in Auditory Nuclei. *Journal of Neurophysiology*. 94:4019-37. [Abstract](#).
3. Park KHJ\*, **Meitzen J\***, Moore IT, Brenowitz EA, Perkel DJ. 2005. Seasonal-like plasticity of spontaneous firing rate in a songbird pre-motor nucleus. *Journal of Neurobiology*. 64:181-91. \*Co-first authors with Park KHJ. [Abstract](#).
2. Farries MA, **Meitzen J**, Perkel DJ. 2005. Electrophysiological Properties of Neurons in the Basal Ganglia of the Domestic Chick: Conservation and Divergence in the Evolution of the Avian Basal Ganglia. *Journal of Neurophysiology*. 94:454-67. [Abstract](#).
1. Klug A, Bauer EE, Hanson JT, Hurley L, **Meitzen J**, Pollak GD. 2002. Response selectivity for species-specific calls in the inferior colliculus of Mexican free-tailed bats is generated by inhibition. *Journal of Neurophysiology*. 88:1941-54. [Abstract](#).

#### **Peer-Reviewed Publications In Review or In Preparation**

1. Dunaway LE, Lee C, Dorris DM, Schmidt A, **Meitzen J**, Sombers LA. Mu-Opioid receptor activation induces catecholamine secretion. *In Preparation*.
2. Liu A, Vainorius G, Hedrick M, Dorris DM, Beeson ALS, Fletcher SC, Crawford AB, Meitzen J. Complex presentation of sex omission and bias in neuroscience research: progress and persisting challenges. *In Review*. *Frontier in Neuroendocrinology*.
3. Cao J, Meitzen J. Electrophysiological properties of labeled and nonlabelled nucleus accumbens medium spiny neurons in LE-Tg(Drd1a-iCre)<sup>3Otc</sup> (RRRC#: 747). *In Preparation*.
4. Fletcher SC, Meitzen J. Metaanalysis of the development of female and male rat striatal and nucleus accumbens neuron electrophysiological properties. *In Preparation*.

#### **Non-Peer Reviewed Publications**

1. **Meitzen J**. 2018. More neuroscience research are reporting research animal sex, but sex bias persists. *Neuronline*. April 5, 2018. [Link to Article](#).
2. Parks L, **Meitzen J**. 2018. Engaging Students in Authentic Research in Lab-based Courses Increases Student Competency in Applying the Scientific Method and Increases Collaboration Between Teaching and Research Faculty. *The FASEB Journal*. 32: 1b225. [Link to Article](#).
3. **Meitzen J**. 2022. Textbook review of: Foundations of Neuroscience (author Casey Henley). *Open Textbook Library*. July 17, 2022. [Link to Article](#).

#### **Open Access Data Sets**



1. Willett JA, Will TR, Hauser CA, Dorris DM, Cao J, Fletcher S, **Meitzen J**. 2023. Data from: No Evidence for Sex Differences in the Electrophysiological Properties and Excitatory Synaptic Input onto Nucleus Accumbens Shell Medium Spiny Neurons. *Dryad*. doi:10.5061/dryad.m905qfv5j [Link to Dataset](#).
2. Proano SB, Krentzel AA, Morris HJ, Kunz LM, Dorris DM, Raina A, **Meitzen J**. 2024. Medium spiny neuron electrophysiological properties across male rats and female rats in different estrous cycle phases in the nucleus accumbens core: Excitatory synaptic input, action potential, and intrinsic properties. *Dryad*. doi.org/10.5061/dryad.k0p2ngfgm [Link to Dataset](#)

### **Selected Posters/Meeting Abstracts**

63. Berger JM, Kimble LC, McCarty GS, **Meitzen J**, Sombers LA. 2024. Real-time co-detection of dopamine and glutamate in rat striatum. LBA002.01, LBA66, Society for Neuroscience meeting, Chicago, IL.
62. Fletcher S, **Meitzen J**. 2024. Medium spiny neuron excitability is greater during early development in female and male rats. PSTR173, I2, #5535. Society for Neuroscience meeting, Chicago, IL.
61. Fletcher S, **Meitzen J**. 2024. Medium spiny neuron excitability is greater during early development in rats. #1108. National Conference on Undergraduate Research (NCUR). Long Beach, CA.
60. **Meitzen J**. 2024. Neurotoxins: a neuroscience senior capstone course organized around Tinbergen's four questions. Conference on Faculty Excellence. NC State, Raleigh, NC.
59. McCarty GS, Kimble LC, Berger JM, Forderhase AG, **Meitzen J**, Sombers LA. 2024. Real-time co-detection of dopamine and glutamate in rat striatum. Monitoring Molecules in Neuroscience Meeting. Chapel Hill, NC.
58. Miller CK, Krentzel AA, **Meitzen J**. 2023. Glutamatergic synapse properties are rapidly modulated by ER $\alpha$  but not ER $\beta$  or GPER1 activation in female rat nucleus accumbens core medium spiny neurons. PSTER393.16/D59. Society for Neuroscience meeting, Washington, D.C.
57. **Meitzen J**. 2023. Neurotoxins: a neuroscience senior capstone course organized around Tinbergen's four questions. Neuroscience Teaching Conference, Wake Forest University, Winston-Salem, NC.
56. Liu A., Vainorius G., Dorris DM, Hedrick M, Crawford A., Fletcher S, **Meitzen J**. 2023. Sex bias and omission in the neuroscience literature. Graduate Student Research Symposium. Raleigh, NC.
55. Fletcher SC, **Meitzen J**. 2023. Medium spiny neuron excitability is elevated before puberty in both females and males and across brain regions. Research Triangle Society for Neuroscience meeting. Durham, NC.
54. Kimble LC, Twiddy JS, Berger J, Forderhase AG, McCarty GS, **Meitzen J**, Sombers LA. 2023. Simultaneous, Real-Time Detection Of Dopamine And Glutamate In Rat Striatum Using Fast-Scan Cyclic Voltammetry. Pittcon. C13-05. Pittsburgh, PA.
53. Liu A., Vainorius G., Dorris DM, Hedrick M, Crawford A., Fletcher S, **Meitzen J**. 2023. Sex bias and omission in the neuroscience literature. Biology/FWCB Graduate Student Symposium. Raleigh, NC.
52. Kimble LC, Twiddy JS, Berger J, Forderhase AG, McCarty GS, **Meitzen J**, Sombers LA. 2022. Real-Time Measurements of Dopamine and Glutamate in Rat Striatum Using Fast-

- Scan Cyclic Voltammetry. Research Triangle Society for Neuroscience meeting. Durham, NC.
51. Beeson ALS, **Meitzen J**. 2022. Estrous cycle impacts on dendritic spine plasticity in rat nucleus accumbens core, shell, and caudate-putamen. Society for Behavioral Neuroscience meeting. P2.38. Atlanta, GA.
  50. Kimble LC, Twiddy JS, Berger J, Forderhase AG, McCarty GS, **Meitzen J**, Sombers LA. 2022. Real-Time Measurements of Dopamine and Glutamate in Rat Striatum Using Fast-Scan Cyclic Voltammetry. Monitoring Molecules in Neuroscience meeting. Lyon, France.
  49. Kimble LC, Twiddy JS, Forderhase AG, McCarty GS, **Meitzen J**, Sombers LA. 2022. Real-Time Detection of Dopamine and Glutamate Using an Enzyme-Modified Carbon-Fiber Microelectrode Coupled with Fast-Scan Cyclic Voltammetry. Pittcon meeting. Philadelphia, PA.
  48. Miller CK, Patisaul HB, **Meitzen J**. 2021. Metabotropic glutamate receptor subtype 5 (mGlu5) is necessary for estradiol mitigation of light-induced anxiety behavior in female rats. Society for Behavioral Neuroscience meeting. Virtual.
  47. Beeson ALS, **Meitzen J**. 2021. The impact of estrous cycle and sex on spine size and spine density in rat nucleus accumbens core, shell, and caudate-putamen. Society for Behavioral Neuroscience meeting. Virtual.
  46. Beeson ALS, **Meitzen J**. 2021. The impact of estrous cycle and sex on spine size and spine density in rat nucleus accumbens core, shell, and caudate-putamen. Triangle Society for Neuroscience meeting. Virtual.
  45. Ross M, **Meitzen J**. 2020. Postpartum depression: a healthcare provider's perspective. SNCURCS. Program 7757. Virtual.
  44. Kimble L, Krentzel AA, **Meitzen J**, Patisaul HB. 2020. Perinatal exposure to fireMaster® 550 yields sex-specific effects on mate bonding in prairie voles. SNCURCS. Program 7826. Virtual.
  43. Proano S, Krentzel A, **Meitzen J**. 2019. Comparison of female rat nucleus accumbens core neuron electrophysiological properties between early and late proestrus. Society for Neuroscience Meeting, Program 040.11, Chicago, IL.
  42. Cao J, **Meitzen J**. 2019. Effect of neonatal hormone exposure on electrophysiological properties of caudate-putamen medium spiny neurons in prepubertal rats. Society for Neuroscience Meeting, Program 147.22, Chicago, IL.
  41. Miller CK, Patisaul HB, **Meitzen J**. 2019. The impact of the estrous cycle and novelty on female rat behavior in the open field test. Society for Neuroscience Meeting, Program 586.26, Chicago, IL.
  40. Krentzel AA, Barrett L, **Meitzen J**. 2019. Estradiol rapidly modulates excitatory synapse properties in a sex and region specific manner in the nucleus accumbens core and caudate putamen. Society for Neuroscience Meeting, Program 673.21, Chicago, IL.
  39. Bredwold R, Proano S, Scazzero A, **Meitzen J**, Veenema AH. 2019. Regulation of social play behavior by oxytocin in the nucleus accumbens of juvenile male and female rats. Society for Neuroscience Meeting, Program 325.23, Chicago, IL.
  38. Truby NL, **Meitzen J**, Krentzel AA. 2019. Visualizing dendritic spine density in medium spiny neurons across the female hormone cycle. Faculty for Undergraduate Neuroscience Symposium, Society for Neuroscience Meeting, Chicago, IL.

37. Krentzel AA, Patisaul HB, **Meitzen J.** 2019. Bidirectional rapid and non-rapid effects of estradiol on voluntary wheel running behavior in adult female and male rats. Society for Behavioral Neuroendocrinology Meeting, Program P1.41 Bloomington, IN.
36. Miller CK, Patisaul HB, **Meitzen J.** 2019. The impact of estrous cycle and novelty on female rat behavior in the open field test. Society for Behavioral Neuroendocrinology Meeting, Program P1.39, Bloomington, IN.
35. Proano SB, Demeny S, Krentzel AA, Dorris DM, **Meitzen J.** 2019. Estrogen effects on nucleus accumbens core medium spiny neuron electrophysiological properties and open field anxiety-related behavior. Society for Behavioral Neuroendocrinology Meeting, Program P1.13, Bloomington, IN.
34. Parks LD, Lubischer JL, **Meitzen J.** 2019. Increasing Inclusive Excellence in the Life Sciences Through the Development of Faculty Workshops and Course-based Research in Order to Increase Transfer Student Success. NC State University Office of Faculty Development Teaching and Learning Symposium.
33. Proano SB, Morris HJ, Kunz LM, **Meitzen J.** 2018. Estrous cycle-induced sex differences in medium spiny neuron excitatory synaptic transmission and intrinsic excitability in adult rat nucleus accumbens core. Society for Neuroscience Meeting, Program 375.17, San Diego, CA.
32. Willett J, Johnson A, Patel P, Dorris DM, **Meitzen J.** 2018. Estrous cycle-dependent sex differences in rat dorsal striatal medium spiny neuron excitability. Society for Neuroscience Meeting, Program 375.16, San Diego, CA.
31. Cao J, **Meitzen J.** 2018. Effect of neonatal hormone exposure on electrophysiological properties of striatal medium spiny neurons in prepubertal rats. Society for Neuroscience Meeting, Program 375.18, San Diego, CA.
30. Krentzel AA, Johnson A, Willett JA, **Meitzen J.** 2018. Sex, age, and regional differences of estrogen receptors and aromatase in the rat striatum. Society for Neuroscience Meeting, Program 154.09, San Diego, CA.
29. Proano SB, Morris HJ, Kunz LM, Dorris DM, **Meitzen J.** 2018. Sex and estrous cycle induced differences in medium spiny neuron electrophysiological properties in adult rat nucleus accumbens core. Organization for the Study for Sex Differences Meeting, Program 56, Atlanta, GA.
28. Krentzel AA, Johnson A **Meitzen J.** 2018. Developmental and sex differences of GPER1 and ER $\alpha$  expression in the striatum of male and female rats. Organization for the Study for Sex Differences Meeting, Program 26, Atlanta, GA.
27. Cao J, Dorris DM, **Meitzen J.** 2018. Electrophysiological properties of male and female medium spiny neuron subtypes in the nucleus accumbens core of Drd1a-tdTomato line 6 BAC transgenic mice. Organization for the Study for Sex Differences Meeting, Program 9, Atlanta, GA.
26. Parks LD, **Meitzen J.** 2018. Engaging Students in Authentic Research in Lab-based Courses Increases Student Competency in Applying the Scientific Method and Increases Collaboration Between Teaching and Research Faculty. FASEB Experimental Biology Meeting, LB225, San Diego, CA.
25. Willett J, Johnson AG, Patel OH, Dorris D, **Meitzen J.** 2017. Estrous cycle-dependent sex differences in rat dorsal striatal msn excitability. Society for Neuroscience Meeting, Program 786.15, Washington, D.C.

24. Proano S, Kunz L, **Meitzen J**. 2017. No evidence for sex differences in intrinsic electrophysiological properties of nucleus accumbens core medium spiny neurons in the gonadectomized adult rat. Society for Neuroscience Meeting, Program 786.07, Washington, D.C.
23. Cao J, Dorris DM, **Meitzen J**. 2017. Electrophysiological properties of male and female medium spiny neuron subtypes in the nucleus accumbens core of Drd1a-tdTomato line 6 BAC transgenic mice. Society for Neuroscience Meeting, Program 786.02, Washington, D.C.
22. Will TR, Proaño SB, Thomas A, Kunz L, Thompson K, Ginnari L, Jones C, Lucas S, Reavis E, Dorris DM, **Meitzen J**. 2017. The ARSiNL Project: Assessing Rodent Sex in Neuroscience Literature. Organization for the Study for Sex Differences Meeting, Program 80, Montreal, Canada.
21. Cao J, Dorris DM, **Meitzen J**. 2016. Neonatal masculinization blocks increased excitatory synaptic input in female rat nucleus accumbens core. Society for Neuroscience Meeting, Program 163.05, San Diego, CA.
20. Will TR, Proaño SB, Thomas A, Kunz L, Thompson K, Ginnari L, Jones C, Lucas S, Payne K, Reavis E, Sowmyanarayanan S, Wang J, **Meitzen J**. 2016. The ARSiNL Project: Assessing Rodent Sex in Neuroscience Literature. Society for Behavioral Neuroendocrinology Meeting, Program 3.51, Montreal, Canada.
19. Willett JA, Cao J, Dorris DM, Will TR, Hauser CA, **Meitzen J**. 2016. Sex Differences in medium spiny neuron electrophysiological properties across three striatal regions. Society for Behavioral Neuroendocrinology Meeting, Program 3.50, Montreal, Canada.
18. Cao J, Willett JA, Hauser CA, Will TR, Dorris DM, **Meitzen J**. 2015. Excitatory synaptic input differs by sex in the nucleus accumbens core but not shell in prepubertal rats. Society for Neuroscience Meeting, Program 245.12, Chicago, IL.
17. Dorris DM, Cao J, Willett JA, Hauser CA, **Meitzen J**. 2015. Intrinsic excitability varies by sex in pre-pubertal striatal medium spiny neurons. Society for Behavioral Neuroendocrinology Meeting, Program 2.51, Asilomar, CA.
16. Dorris DM, Cao J, Willett JA, Hauser CA, **Meitzen J**. 2015. Intrinsic excitability varies by sex in pre-pubertal striatal medium spiny neurons. Organization for the Study of Sex Differences Meeting, Program No. 66, Stanford University, CA.
15. Dorris DM, Cao J, Willett JA, Hauser CA, **Meitzen J**. 2014. Intrinsic excitability varies by sex in pre-pubertal striatal medium spiny neurons. Society for Neuroscience Meeting. Program No. 544.01. Washington, D.C.
14. **Meitzen J**, Luoma JI, Boulware MI, Hedges VL, Mermelstein PG. 2013. Palmitoylation of estrogen receptors is essential for neuronal membrane signaling. Society for Neuroscience Meeting. Program No. 472.10. San Diego, CA.
13. **Meitzen J**, Mermelstein PG. 2012. The organizational and aromatization hypotheses apply to rapid, non-classical hormone action: neonatal masculinization eliminates rapid estradiol action in female hippocampal neurons. Society for Neuroscience Meeting. Program No. 384.02. New Orleans, LA.
12. **Meitzen J**, Perry AN, Westenbroek C, Becker JB, Mermelstein PG. 2011. Sex differences in the expression of the  $\beta$ 1-adrenergic receptor in striatal neurons. Society for Neuroscience Meeting. Program No. 586.14. Washington, D.C.

11. **Meitzen J**, Luoma JI, Stern CM, Mermelstein PG. 2010.  $\beta$ 1-adrenergic receptors activate two distinct signaling pathways in striatal neurons. Society for Neuroscience Meeting. Program No. 491.12. San Diego, CA.
10. **Meitzen J**, Luoma JI, Stern CM, Mermelstein PG. 2010.  $\beta$ 1-adrenergic receptors activate two distinct signaling pathways in striatal neurons. Institutional Training Grant in Neuroscience Training in Drug Abuse Retreat. Minneapolis, MN.
9. **Meitzen J**, Luoma JI, Mermelstein PG. 2009.  $\beta$ -adrenergic receptor activation induces CREB phosphorylation in striatal neurons. Society for Neuroscience Meeting. Program No. 566.2. Chicago, IL.
8. **Meitzen J**, Thompson CK, Choi H, Perkel DJ, Brenowitz EA. 2008. Fast increases in song stereotypy and song rate in Gambel's white-crowned sparrows following transition to breeding condition. Society for Neuroscience Meeting, Program No. 492.21, Washington, DC.
7. **Meitzen J**, Brenowitz EA, Perkel DJ. 2007. Bilateral intracerebral infusion of androgen and estrogen receptor antagonists near HVC prevents seasonal-like increases in song stereotypy but not rate. Society for Neuroscience Meeting, Program No. 751.6, San Diego, CA.
6. Weaver AL\*, **Meitzen J**\*, Brenowitz EA, Perkel DJ. 2007. Breeding conditions alter intrinsic electrophysiological properties of song control neurons in Gambel's white crowned sparrows. Society for Neuroscience Meeting, Program No. 751.5, San Diego, CA. \*Co-first authors with Weaver AL.
5. Smarr B, Georgi S, Harris R, Watari H, White B, Ting J, **Meitzen J**, Wark A, Azevedo T, Barot S, de la Iglesia HO, Chudler E. 2007. Lesson plans for teaching neuroscience to pre-college students Society for Neuroscience Meeting, Program No. 29.10, San Diego, CA.
4. **Meitzen J**, Perkel DJ, Brenowitz EA. 2007. Steroid hormones act in nucleus HVC to change activity in its target nucleus RA in adult songbirds. International Society for Neuroethology Meeting, Program No. PO132, Vancouver, BC.
3. **Meitzen J**, Perkel DJ, Brenowitz EA. 2006. Seasonal changes in intrinsic electrophysiological activity of song control neurons in wild songbirds. Society for Neuroscience Meeting, Program No. 269.11, Atlanta, GA.
2. White BD, Watari H, Ting JT, Sebe JY, Wissman AM, Cherny E, McDevitt RA, Lambert TJ, **Meitzen J**, Chudler EH. 2006. Interactive Brain Awareness Week exhibits offer experience learning: a model for teaching concepts in neuroscience. Society for Neuroscience Meeting, Program No. 23.14, Atlanta, GA.
1. **Meitzen J**, Brenowitz EA, Perkel DJ. 2005. Photoperiod Modulates the Time Course of a Testosterone-Induced Increase in Spontaneous Firing Rate in a Songbird Premotor Nucleus. Society for Neuroscience Meeting, Program No. 780.5, Washington, DC.

### **Invited Talks**

#### 2024

“Commencement Address.” Department of Biological Sciences Graduation, Spring 2024. NCSU.

“Electrophysiology Techniques.” GLIA Scholars Program, Techniques in Biochemistry and Molecular Biology, Biological & Biomedical Sciences Program, NCCU.

#### 2023

“Electrophysiology Techniques.” GLIA Scholars Program, Techniques in Biochemistry and Molecular Biology, Biological & Biomedical Sciences Program, NCCU.

“Sex differences in neuron function” 7<sup>th</sup> Annual Center for Human Health and the Environment Symposium, CHHE, NCSU.

2022

“Electrophysiology Techniques.” GLIA Scholars Program, Techniques in Biochemistry and Molecular Biology, Biological & Biomedical Sciences Program, NCCU.

“Sex differences in striatal neurons.” Biological & Biomedical Sciences Program, NCCU. Virtual.

“The good, the bad, and the confusing: pilot data for receptor mechanisms underlying rapid estradiol modulation.” NCSU CHHE Neuroscience & Behavior RIG Meeting. Virtual.

2021

“Estradiol Rapidly Modulates Excitatory Synapse Properties in the Nucleus Accumbens Core” The Steroid Hormones and Receptors in Health and Disease (Virtual) Conference, jointly organized by FASEB and the International Committee on Rapid Responses to Steroid Hormones (RRSH). Virtual.

“Sex differences in neuron function.” Dept. of Anatomy and Neurobiology. Virginia Commonwealth University School of Medicine. Virtual.

“Sex differences in neuron function.” Laboratory of Neuroendocrinology. UCLA. Virtual.

2020

“Sex differences in neuron function.” Graduate program in Toxicology. NC State University.

2019

“Sex differences in medium spiny neuron function in the nucleus accumbens” University of North Texas Health Sciences Center, Fort Worth, TX.

“Sex differences in medium spiny neuron function in the nucleus accumbens” Temple University, Philadelphia, PA.

2018

“Sex, hormone cycles, and neuron function.” Behavioral Neuroscience Seminar, Elon University

“Sex differences in medium spiny neuron function in the nucleus accumbens” in the “Sex differences and hormone action in the limbic system” session #534, Society for Neuroscience Meeting, San Diego, CA.

Receptor Mechanisms Discussion Group, National Institute of Environmental Health Sciences

“Sex Differences at the Electrophysiological Level: A Focus on the Limbic System” Session, Organization for the Study of Sex Differences Meeting, Atlanta, GA

Keynote Speaker, Triangle SciTech Expo, NC Science Festival, North Carolina Museum of Natural Sciences, Raleigh, NC.

2017

Life Sciences Seminar Series, Virginia Tech University, Blacksburg, VA, [Link to Video](#)

Professional Development Workshop in Public Engagement, 2017 Society for Neuroscience Conference, Washington, DC (Moderator and Speaker), [Link to Video](#)

Receptor Mechanisms Discussion Group, National Institute of Environmental Health Sciences Dept. of Biological Sciences, NC State University

Integrative and Behavioral Neuroscience Program, Dept. of Psychology, University of North Carolina at Chapel Hill

2016



10<sup>th</sup> International Meeting on Rapid Responses to Steroid Hormones, Virginia Commonwealth University, Richmond, VA

Neuroscience and Behavior Graduate Program, U. Mass Amherst

2015

Laboratory of Neurobiology, National Institute of Environmental Health Sciences

Behavioral Neuroscience Seminar, Elon University

2014

Winter Conference on Brain Research, Steamboat Springs, CO

Dept. of Psychology, University of North Carolina at Chapel Hill

Dept. of Physics, NC State University

2013

Gordon Conference in Catecholamines, Mt. Snow, VT

Society for Behavioral Neuroendocrinology Meeting, Atlanta, GA

Genes and Behavior Conference, University Global Partnership Network, NC State University

Behavioral Neuroscience Seminar, Elon University

W.M. Keck Center Evening Discussion Leader, NC State University

Dept. of Biological Sciences, NC State University

2012

Dept. of Pharmacology, University of Maryland Medical School

Dept. of Zoology, University of Oklahoma

Dept. of Biology, North Carolina State University

Dept. of Psychology, Northeastern University

Dept. of Biology, Ohio University

2011

Dept. of Psychology, University of Massachusetts, Boston

Dept. of Biology, University of Minnesota Duluth

Dept. of Biology, Lehigh University

Symposium: Neurobiology of Drug Abuse. Dept. of Neuroscience, University of Minnesota.

Dept. of Biology, Wake Forest University.

2010

Organization for the Study of Sex Differences annual meeting, Elizabeth A. Young New Investigator Symposium.

2009

Dept. of Neuroscience, University of Minnesota

Section of Neurobiology, University of Texas at Austin

2008

Workshop on Steroid Hormones and Brain Function. Young Investigator Symposium.

2005

Program in Neurobiology and Behavior Annual Retreat, University of Washington.

### **Research Positions**

Professor (2023-Present), Associate Professor (2018-2023), Assistant Professor (2013-2018), Dept. of Biological Sciences, North Carolina State University

Post-doctoral Fellow/Associate: Laboratory of Paul Mermelstein, Dept. of Neuroscience, University of Minnesota, 2008 – 2012.

Grass Fellow, Marine Biological Laboratory, Summer 2011.

Graduate Student: Laboratories of David Perkel and Eliot Brenowitz, University of Washington, Program in Neurobiology and Behavior, 2002 – 2008.

Undergraduate Research Fellow: Laboratory of George Pollak, University of Texas at Austin, 2001 – 2002

Summer Undergraduate Research Fellow: Laboratory of James Halpert, University of Texas Medical Branch at Galveston, 2000

### **Courses Taught**

Sole Instructor: BIO 488/588, Neurobiology, Fall Semester 2014 (rated 4.7/5, nominated for the Thank a Teacher Program), Fall 2015 (rated 4.8/5, nominated for the Thank a Teacher Program), Fall 2016 (rated 4.9/5, nominated for the Thank a Teacher Program); Fall 2017 (rated 4.8/5.0), Fall 2018 (rated 4.8/5), Fall 2019 (rated 4.9/5.0, nominated for the Thank a Teacher Program), Fall 2020 (no ratings due to COVID pandemic, nominated for the Thank a Teacher Program); Summer Session I 2021 (rated 5.0/5.0, nominated for the Thank a Teacher Program); Summer Session I 2022 (rated 4.9/5), Fall 2022 (rated 4.8/5.0), Summer 2023 (rated 4.8/5.0), Fall 2023 (rated 4.9/5), Summer 2024 (rated 5.0/5.0); BIO 483, Senior Capstone Course in Integrated Physiology and Neurobiology: Neurotoxins, Spring 2014 (rated 5.0/5), Spring 2015 (rated 5.0/5, nominated for the Thank a Teacher Program), Spring 2022 (rated 5.0/5); BIO 483, Senior Capstone Course in Integrated Physiology and Neurobiology: Motor Systems and Disorders, Spring 2024 (rated 4.9/5); ZO 592, The Plastic Brain: Hormones and Neuromodulators, Spring 2016 (rated 5.0/5, nominated for the Thank a Teacher Program); Neuroscience LSC 170, Life Sciences First Year Seminar: The Neural Mechanism of Behavior, Spring 2017 (rated 5.0/5); ZO 592, Neuroscience, Fall 2015 and 2017 (no ratings available); BIO 592, Oxytocin, Spring 2023 (no ratings available)

Co-Instructor: BIO/CBS 705: Neuroscience, Fall 2018, Fall 2020, Fall 2022 (rated 5.0/5); BIO/CBS 805: Seminar in Neuroscience, Spring 2018; BIO 483, Senior Capstone Course in Integrated Physiology and Neurobiology: Behavioral Neuroendocrinology, Spring 2014; ZO 588, Graduate Level Neurobiology, Fall Semester 2016

Guest Lecture: BIO 444, Biology of Love and Sex, Fall 2023, 2022; BIO 434, Hormones and Behavior, Spring 2021; BSC 495, Critical Thinking and the Nature of Science, Spring 2021

Education, Advising, and other Relevant Training: U. of Minnesota Mentorship in Active Learning as part of F32 training, Dr. Janet Dubinsky, 2012; NCSU CALS Teaching Workshop in Active Learning, 2013; NCSU HHMI Teaching Workshop, 2019; NCSU Green Zone Training for serving veterans, 2020 (2 hours); NCSU EDU Training, 2020 (1 hour); NCSU OPA OIEDS Graduate School Seminar in Staying the Course: 2020 (1.5 hours); VISIONS training Workshop, 2020 (2 hours); NCSU OIEDS Workshop 2020 (2 hours); VISIONS training Workshop 2021 (2 hours); Society for Women's Health Research and Endocrine Society Women's Health Research: Understanding the Roles of Sex and Gender, 2021 (1 hour); NCSU HHMI Excellence

Teaching Workshop Invited Mentor, 2022; SBN Conference Professional Development Workshop, 2022; Mental Health First Aid Training, 2022 (8 hours); ADI Certificate Core Workshop: Career Resources, 2023 (1 hour); ADI Certificate Core Workshop: Career Identity Program, 2023 (30 minutes); ADI Certificate Core Workshop: Introduction to Technology and Policy, Part One and Part Two, 2023 (3 hour); ADI Certificate Core Workshop: IA, 2023 (2 hours); ADI Certificate Core Workshop: Communicating with Advisees and Holistic Advising (1.45 hours); NC State Conference on Faculty Excellence workshops, 2024 (5 hours)

Formal Education Mentoring/Training: Kylie Rock, as part of her F31 training program (2018-2019); Rupali Gupta, Ph.D., Preparing the Professoriate (2020), Amanda Krentzel, as part of her instructor of record position in Neurobiology (2021), Christiana Miller, as part of her instructor of record position in LSFY seminar (2022).

### **Trainees**

Postdoctoral:

Jinyan Cao, M.D., Ph.D., Postdoctoral Research Associate, 2014-2021; Amanda Krentzel, Ph.D.<sup>@,#</sup>, Postdoctoral Fellow, 2017-2020. <sup>@</sup>Winner of a Travel Award; <sup>#</sup>Winner of a Best Poster, Talk, or Research Award

Research technicians:

David Dorris (2013-Present), Diana Carreon (2024)

Graduate students that I served as advisor:

Nathan Dale, Masters Program in Biology (2023-Present); Eleanor Brademan, Masters Program in Biology (2024-Present), Melissa Daeschner, Ph.D. Program in Comparative Biomedical Sciences, Neuroscience Concentration (Co-advisor with Dr. Javier Lopez-Soto, 2022-Present); Amilcar Rodriguez, Ph.D. Program in Comparative Biomedical Sciences, Neuroscience Concentration (Co-advisor with Dr. Guohong Cui, 2022-Present); Jaime Willett<sup>#,&</sup>, Ph.D. Program in Physiology, (2014-2019); Stephanie Proano<sup>\*,@,#</sup>, Ph.D Program in Biology (2015-2020); David Watts, Masters Program in Biology (Co-advisor with Dr. Lisa Paciulli, 2018-2020); Matthew Hedrick, Masters Program in Biology (2021-2022); Christiana Miller<sup>%,@,#</sup>, Ph.D Program in Biology (2018-2022); Anna Smith Beeson<sup>#,@</sup>, Masters Program in Biology (2020-2022); Alice Liu, Masters Program in Biology (2023-2024); <sup>\*</sup>SPINES course participant, MBL; <sup>#</sup>Winner of an Outstanding Talk, Poster, Teaching or Research Award, <sup>&</sup>Grass Fellow, MBL, <sup>@</sup>Winner of a Travel Award, <sup>%</sup>Winner of a Provost Graduate Fellowship

Graduate students supervised in research that I did not serve as advisor:

Alice Liu, Masters Program in Physiology (2021-2022)(non-thesis masters, competed research in the laboratory); Gwen Dallman, Masters Program in Physiology (2022); Jared Smith (2022)(non-thesis masters, competed research in the laboratory); Kiersten Kronschanbel (2017-2018); Lars Dunaway (2016-2017); Andrea Vogel (2015-2017); Anly Thomas (2015-2016; non-thesis Master's Program in Physiology)

Undergraduate:

Emma Brooks<sup>%</sup> (2024-Present), Sophia Burgess (2024-Present), Armaan Raina<sup>%</sup> (2024-Present); Helen Watson (2022-Present) Park Scholar Faculty Mentor, Osarobo Obasuyi (2022-Present)

Park Scholar Faculty Mentor, Asha Coltrane (2022-Present); Annelise Soderberg (2024); Sarah Fletcher<sup>&,\*,\$</sup> (2022-2024); Elissa Hall<sup>%</sup> (2023-2024); Park Scholar Faculty Mentor; Olivia Lannom (2022-2023), Ashtin Crawford<sup>%</sup> (2022-2023); Laney Kimble<sup>%,/\*,@\$</sup> (2020-2023), Anushna Saha (2022); Tatum Kellum (2019-2022) Park Scholar Faculty Mentor, Kristina Howell (2020-2021) Pack Promise Faculty Mentor, Gabriella Vainorius<sup>%, \$</sup> (2019-2021), Madeline Ross<sup>&,\$</sup> (2020); Gabriella Mamlouk<sup>,\$&</sup> (2018-2020); Natalie Truby<sup>\*,#,\$</sup> (2018-2020); Gina Kim (2019-2020), Amy Halbing (2019), Hannah Morris<sup>\$</sup> (2017-2019), Steve Demeny<sup>\$</sup> (2018-2019), Lily Barrett (2018-2019), Laura Ginnari<sup>%,\*,\$</sup> (2015-2018), Beverly Setzer<sup>\$</sup> (2018), Catalina Montiel Rios<sup>&</sup> (2016-2017), Opal Patel<sup>%,\*,\$</sup> (2016-2017), Ashlyn Johnson<sup>%,&,#,\$</sup> (2015-2017), Lindsey Kunz<sup>%,&,\$</sup> (2015-2017), Tyler Will<sup>%,\*,\$</sup> (2015-2016), Elizabeth Reavis (2016), Sarah-Catherine Lucas (2016), Kelly “Chase” Thompson<sup>%</sup> (2016), Kaela Payne (2016), Clay Jones (2015), Caitlin Hauser<sup>\*&# \$</sup> (2013-2015), Jordan Wong<sup>\*# \$</sup> (2014-2015), Caitlin Minnehan<sup>\*</sup> (2013-2014); Kyla Britson<sup>\$</sup> (2010-2012), Krista Tuomela<sup>\$</sup> (2010-2012), Kelsey Pfelpsen (2009-2011), Mikaela Hofer (2010-2011); Heejung Choi (2007). \*Winner of an Undergraduate Research Grant. #Winner of an Outstanding Research Award or Poster Award. %Winner of a Provost Professional Experiences Program Fellowship, &Completed Honors Thesis, \$Presented a poster on his or her work from our laboratory at an undergraduate-focused or local research conference; @Named a Beckman Foundation Chemistry of Life Scholar

High School:  
David Lu, 2017

### **Service** **Professional**

Ad hoc grant reviewer panelist for: NIH: Behavioral Neuroendocrinology, Neuroimmunology, Rhythms, and Sleep Study Section (BNRS), 2022; RFA-OD-19-029 -The Intersection of Sex and Gender Influences on Health and Disease, 2020; ZNS1 SRB-N BRAIN Circuit U19 programs, 2019; Neuroendocrinology, Neuroimmunology, Rhythms and Sleep Study Section (NNRS), 2018; DOD: Ad hoc DoD ARO grant reviewer: 2016 NCSU: Center for Human Health and the Environment Pilot Project Awards (2017, 2019-2021, 2024); NCSU Undergraduate Research Grants (2019);

Expert Panel: Association of Migraine Disorders; “The basic science of how sex hormones influence migraine” 2022

External Referee/Evaluation for Promotion: Virginia Commonwealth University (2024); Michigan State (2023); Albany Medical College (2022)

Multiple Committees for Professional Societies (Please see Society Membership section)

Editorial Board Member: Biology of Sex Differences (2024-2027), Reviewing Editor for: Frontiers in Neural Circuits (2017-2020), Endocrinology (2016-2018)

Ad hoc reviewer for: Journal of Neuroscience (2008, 2010-2012, 2014, 2016-2018, 2022 – 3 times, 2023, 2024 – 2 times); Biology of Sex Differences (2018, 2021-2024); eNeuro (2015,

2024), Hormones and Behavior (2011-2012, 2014-2015, 2018-2022, 2024); Physiology and Behavior (2020, 2024); Neuroscience (2015, 2022, 2024); European Journal of Neuroscience (2021, 2024); NCSU Conference for Faculty Excellence Poster Awards (2024); Neuroscience and Biobehavioral Reviews (2024 - twice); Neuroendocrinology (2019-2020, 2023), Science Advances (2023), Behavioural Brain Research (2012, 2019, 2023, 2023); Biological Psychiatry (2023); Journal of Neurophysiology (2012, 2014-2015, 2022); Journal of Comparative Neurology (2021-2022); Nature Communications (2021-2022); Research Triangle Chapter of the Society for Neuroscience Meeting Abstracts (2017, 2022); Cerebral Cortex (2022); Elsevier Publishing (2022); AJP: Cell Physiology (2020-2021); Brain Research (2011-2013, 2016, 2018, 2021); European Journal of Pharmacology (2021); Developmental Neurobiology (2021); BBA - Molecular and Cell Biology of Lipids (2021); Journal of Neurochemistry (2020, 2012), eLife (2020); Addiction Biology (2020); Endocrinology (2014-2015, 2016-2018, 2020), Experimental Brain Research (2020); Data in Brief (2020), Psychoneuroendocrinology (2018-2019), Journal of Neuroendocrinology (2017-2019), Sinauer Associates, Inc., Publishers (2019, 2015), Brain Structure and Function (2019); Neuroscience Letters (2019, 2017); Scientific Reports (2016-2017), Journal of Visualized Experiments (2017), Center for Human Health and the Environment Community Mini Grants Awards (2017), Endocrine Society 2018 Meeting Abstracts (2017), Animal Behaviour (2016), Integrative and Comparative Biology (2014-2015), General and Comparative Endocrinology (2010, 2015), Annals of Biomedical Engineering (2015); Neural Plasticity (2015), PLoS One (2014), PeerJ (2014), SACNAS National Conference Abstracts or Travel Awards (2010, 2013-2014), Experimental Biology and Medicine (2013), Proceedings of the Royal Society B: Biological Sciences (2012), Development Growth and Differentiation (2010), Journal of Chemical Neuroanatomy (2010), Comparative Biochemistry and Physiology (2009)

### University

Administration: Coordinator, Biological Sciences B.S. with a concentration in Integrative Physiology and Neurobiology (2022-Present; Interim: Fall 2020-Spring 2021); Representative, Neuroscience Concentration in the CBS Graduate Program (2019-2021)

Club Advisor: NCSU Fencing Club (2024-Present); NCSU Neuroscience Club (2024-Present)

Graduate Advisor: Nathan Dale, Masters Program in Biology, 2023-Present; Eleanor Brademan (2024-Present, Masters Program in Biology, Melissa Daescher, 2023-Present, Ph.D. Program in Comparative Biomedical Sciences, Co-advisor with Dr. Javier Lopez-Soto; Amilcar Rodriguez, 2023-Present, Ph.D. Program in Comparative Biomedical Sciences, Co-advisor with Dr. Cui; Jaime Willett<sup>#,&</sup>, Ph.D. Program in Physiology, (2014-2019); Stephanie Proano<sup>\*,@,#</sup>, Ph.D Program in Biology (2015-2020); David Watts, Masters Program in Biology (Co-advisor with Dr. Lisa Paciulli, 2018-2020), Matthew Hedrick, Masters Program in Biology (2020-2021); Anna Smith Beeson<sup>!</sup>, Masters Program in Biology (2020-2022); Christiana Miller<sup>%,@,!'</sup>, Ph.D Program in Biology (2018-2022); Alice Liu, Masters Program in Biology, 2023-2024;.

\*SPINES course participant, MBL; <sup>#</sup>Winner of an Outstanding Talk, Poster or Research Award, <sup>&</sup>Grass Fellow, MBL, <sup>@</sup>Winner of a Travel Award, <sup>%</sup>Winner of a Provost Graduate Fellowship, <sup>!</sup>Winner of an outstanding Teaching Assistant Award or Peer Mentoring Award

Member Graduate Advisory Committee: Yang Tang (Not yet formal but said yes; Comparative Biomedical Sciences); Laura Montes (2024-Present, Toxicology); Hannah Starnes (2023-Present; Toxicology, GSR); Will Lee (2022-Present, Biology); Melody Hancock (2022-Present, Bioinformatics); Kim Scofield (2022-Present, Comparative Biomedical Sciences); Melissa Daescher (2022-Present, Comparative Biomedical Sciences); Amilcar Rodriguez (2022-Present, Comparative Biomedical Sciences); Ian McConnell (2020-Present, Comparative Biomedical Sciences), Allison Nolker (Zoology, 2013-2014), Jonathan Douros (Zoology, 2014-2015), Amanda Bostian (Animal Science, 2015-2017), Nastassja Rhodes (Chemistry, 2016-2017), Lars Dunaway (Chemistry, 2013-2017), Sheryl Arambula (Zoology, 2015-2017), Cassie Rhodes (Comparative Biomedical Science; 2017-2018), Leslie Wilson (Chemistry, 2014-2018), Allison Camp (Toxicology, 2016-2018), Marshall Phillips (Biology, 2017-2018); Rebecca Poole (Animal Sciences, 2017-2019); Heather Allardice (Comparative Biomedical Science; 2017-2019); Kylie Rock (Toxicology, 2016-2019); Megan Knuth (Toxicology; 2017-2020); Nicolette Petervary (Comparative Biomedical Sciences, 2020-2021), Joshua Wheeler (Comparative Biomedical Sciences, 2018-2021); Sam Harp (2021, Genetics); Dorothy You (Toxicology; 2018-2021); Amy Farthing (2020-2022; Comparative Biomedical Sciences); KaLynn Harlow (2019-2022, Animal Science); Sagi Gillera (2018-2022, Toxicology); Ryan Weeks (Toxicology, 2018-2022); Daquan Mebane (2022-2023, Masters in Neuroscience, GLIAL scholars program, North Carolina Central University); Alex Forderhase (Chemistry, 2023); Dana Hodorovich (2019-2023, Comparative Biomedical Sciences); Jake Deslauriers (2018-2023, Genetics), Jack (John) Twiddy (2022-2024, Biomedical Engineering); Alex Long (2019-2024, Statistics)

NC State Undergraduate Honors Research/Project Advisor, Students: Caitlin Hauser (2013-2014), Joshua Humphries (2014), Ashlyn Johnson (2015-2017), Lindsey Kunz (2016-2017), Catalina Montiel Rios (2016-2017), Madeline Ross (2020), Sarah Fletcher (2022-2023)

NC State Neuroscience Journal Club Faculty Member, 2013-2019

Member, University Centers: Center for Human Health and the Environment, Neuroscience Interest Group (2013-Present); Chemistry of Life Program (2013-Present); Comparative Medicine Institute (2015-2024), W.M. Keck Center for Behavioral Biology (2013-2020; Executive Board member 2017-2020);

Member, Graduate Programs: Biology (previously Zoology); Physiology; Comparative Biomedical Science (Cell Biology and Neuroscience Concentrations); Genetics (All 2013-Present)

Peer Teaching Evaluator: Dr. Natalia Duque-Wilckens (2023), Dr. Christa Baker (2023); Dr. Whitney Jones (2023); Dr. Michael Cowley (2022), Dr. Emilie Rissman (2022).

Committee Member: Biological Sciences Dept. Post-tenure Review committee (Fall 2024-end of spring 2027); Biological Sciences Dept. Head Search Committee (2023-Present); Biological Sciences Dept. Head Faculty Advisory Committee, (2017, 2022-Present); NCSU College of Sciences Senior Outstanding Research Award Committee (2022-2024); Research Technician Search Committee, Duque-Wilckens laboratory (2024); Dept. Biological Sciences DVF Dossier presenter/assessment writer (2022 and 2023 for two individuals, 2019); Nomination Committee



for Associate Dean of Academic Affairs, College of Sciences (2018, 2022), MBTP Training Grant Sub-Committee on Trainer Mentoring (2021-2022); CVM MBS Neuroscience Hiring Committee (2020-2021); Pack Promise Mentor (2020-2021), University Faculty Scholars Administrative Advisory Committee (2018-2020), Board of Governors Award for Excellence in Teaching Administrative Advisory Committee (2020), New Faculty Mentoring Committee for Kurt Marsden, 2017-Present, Santosh Mishra 2017-2022, Beth Lucas, 2018-2022; Biological Resources Facility Advisory Committee (2016-2020), Dept. Biological Sciences Honors Program Paper Reviewer (2020, 2022), NCSU Undergraduate Research Grant Reviewer (2014, 2019); Biology Graduate Program Admissions Committee (2019-2021); CBS Graduate Program Admissions Committee (Jan 2019-June 2021); W.M. Keck Center for Behavioral Biology Student/Post-Doc Symposium Judge (2019); Selection Committee for the Dept of Biological Sciences Outstanding Senior Research Awards (2019); CBS graduate program/CVM MBS Neuroscience Steering and Hiring Committees (2016, 2016-2018), Dept. Biological Sciences Building Future Faculty Mentor and Evaluating Committee (2016), Dept. Biological Sciences Neuroscience Faculty Recruitment Committee (2015-2016), Biological Resources Facility Research Technician Hiring Committee (2016), Nomination Committee for Dean of the College of Sciences (2014-2015)

Presenter: NCSU National Organization of Rare Diseases Chapter (2023-2024); NCSU Biology Club (2023-2024, 2018); Neuro Donut Hour (2023); Attendee at Parks Scholar Finalist Interview Luncheon for College of Sciences (2023), ALS 398 Honor Interviewee (2022); Life Science First Year Laboratory Tour (2020), AED pre-medical club (2020); Presentation to the NC State 50<sup>th</sup> Class Reunion and Alumni Forever Club, 2018; “A Class without a Quiz” Presentation, Alumni Forever Club, 2019); College of Sciences Dinner 2017; Life Science First Year Women in Science and Engineering Social, 2017; Faculty Representative to College of Sciences Football Suite, 2017; “A Class without a Quiz” Chancellor’s Official Visit to the College of Science (2015, 2016).

#### Community/Science Engagement

Co-Organizer or Organizer, North Carolina State University, Keck Center for Behavioral Biology, and NC Museum of Natural Sciences Brain Awareness Week Outreach Program, 2014-2019, 2023-2024 (2020, 2021, 2022 cancelled)

Advisory Board, NC State University Branch, State Employee Credit Union, 2022-2024

Science Olympiad Volunteer Coach, Ligon Middle School, 2023, 2024

Classroom Presenter and/or Volunteer/Judge/Invited Speaker for Science Fair, Neuroscience, or Science in general: Raleigh Charter High School, 2023; Martin Middle School, 2021; Fred Olds Elementary 2016-2020, Classical Connections Home School Association 2018

Presenter, Nocturnal by Nature event at the NC Museum of Natural Sciences, 2016, 2022, 2023

Guest, Science Tonight with Chris Smith, NC Museum of Natural Sciences, 2021;  
<https://www.youtube.com/watch?v=4njWw64UILU>

Collaborator, 360 VR Lab Demo with Mike Cuales, Creative Director, New Media Development, NC State University, 2018-2019

Trainor/Presenter, Workshop for teachers of grades 6-8 at Northern Vance County High School, in collaboration with The Science House (the K-12 outreach arm of NC State's College of Sciences), 2017. Following up on this was presentations at associated 6-8 grade Science Clubs at rural, minority-majority schools, 2017

Presenter, Center for Human Health and the Environment "Beer Reviewed Science" series at Raleigh Brewing Company, 2017

Presenter, Emerging Scholars summer program at NC State University, 2017

Presenter, Science Scircus at the NC State University Brickyard, 2016.

Selected Participant, Grass Foundation Neuroscience Outreach Workshop, 2016

Elementary School Classroom Presenter, Winter Conference in Brain Research, 2014; University of Minnesota Brain Awareness Week 5<sup>th</sup> Grade Classroom Visits, 2010-2012

Member, University of Washington Neurobiology Outreach team and Presenter, University of Washington Brain Awareness Week Open House: 2005 - 2008.