

Aubrey M. Kelly, Ph.D.

Assistant Professor
Department of Psychology, Neuroscience and Animal Behavior Program
Emory University

Contact Information

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Research Interests

Behavioral neuroscience; neuroplasticity; social behavior; systems neuroscience; individual and species differences in behavior; epigenetics; development of the social brain; rapid modulation of social behavior

Education

2014 Ph.D. in Biology and Neuroscience, Indiana University, Bloomington
2007 B.A. in Psychology, University of California, San Diego

Research and Employment

2018- *Assistant Professor*
Emory University, Department of Psychology

2014-2018 *Postdoctoral Fellow*
Cornell University, Department of Psychology
Supervisor: Alexander G. Ophir

2015 *Faculty*
Marine Biological Labs at Woods Hole Research Center
Neural Systems and Behavior Summer Course

2008-2014 *Graduate Student*
Indiana University, Department of Biology
Supervisor: James L. Goodson

2005-2008 *Research Assistant*
University of California at San Diego, Department of Psychology
Supervisor: James L. Goodson

2006-2007 *Research Assistant*
University of California at San Diego, Department of Biology
Supervisor: James C. Nieh

Awards and Honors

2016 International Women's Day Award for Community Engagement, Cornell Women's Resource Center, Cornell University

2014 William C. Young Recent Graduate Award, Society for Behavioral Neuroendocrinology

2014 Provost's Travel Award for Women in Science, Indiana University (IU)

2014	IU Center for the Integrative Study of Animal Behavior (CISAB) Hanna Kolodziejwski Award
2013	CISAB Semester Scholarship, IU
2013	Provost's Travel Award for Women in Science, IU
2012	Louise Constable Hoover Summer Fellowship, IU
2012	Best Oral Presentation Award at W.M. Keck Center for Behavioral Biology 13 th Annual Symposium, North Carolina State University (NCSU)
2012	CISAB Travel Award to present at the W.M. Keck Center for Behavioral Biology 13th Annual Symposium NCSU
2011	Center for Behavioral Neuroscience Travel Award to present at the Workshop on the Biology of Prosocial Behavior, Emory University
2010	Society for Behavioral Neuroendocrinology Travel Award
2009	CISAB Summer Research Fellowship, IU
2007	Summa Cum Laude Graduate, University of California, San Diego

Grants

Completed Research Support

NIH/NICHHD F32 HD081959	Kelly, AM. (PI)	2014-2017 (\$154,662)
<i>Title:</i> Impact of early life family structure on behavior, nonapeptide systems, and the epigenome of offspring and mothers.		
NIH/NICHHD T32	Ketterson, ED. (PI); Kelly, AM. (Fellow)	2012-2013 (\$23,000)
<i>Title:</i> Common Themes in Reproductive Diversity.		

Publications (reversed chronological order)

(^Φ indicates undergraduate student)

A. In Preparation:

26. **Kelly A.M.** Advances in our understanding of the role of neuroendocrine systems in the response to social challenges. (*Invited Review in prep for Hormones and Behavior*)
25. **Kelly A.M.** and Ophir A.G. Characterization of oxytocin receptors in the prairie vole: How immunohistochemical labeling with a custom antibody compares to traditional autoradiography. (*In prep for Journal of Comparative Neurology*)
24. **Kelly A.M.** and Ophir A.G. Rapid changes in DNA methylation in adults: Consequences of behavioral testing. (*In prep for Biology Letters*)
23. **Kelly A.M.**, Chun E.K., Ophir A.G. Revisiting the social behavior network in rodents: A comprehensive functional analysis examining patterns of neural activity in varying social contexts. (*In prep for Nature's Scientific Reports*)
22. **Kelly A.M.**, Witmer R.A. ^Φ, Ong J.Y. ^Φ, Ophir A.G. Paternal influences on social behavior, nonapeptide gene expression, and the epigenome of offspring. (*In prep for the Proceedings of the National Academy of Sciences USA*)

B. Published:

21. Hiura L.C., **Kelly A.M.**, Ophir A.G. (2018) Age-specific and context-specific responses of the medial extended amygdala in the developing prairie vole. *In Press at Developmental Neurobiology*.
20. Finton C.J., **Kelly A.M.**, Ophir A.G. (2018) Cannulation and microinjection stereotaxic surgeries in the prairie vole (*Microtus ochrogaster*). *Kopf Carrier #94*.

19. **Kelly A.M.**, Hiura L.C., Ophir A.G. (2018) Rapid nonapeptide synthesis during a critical period of development in the prairie vole: Plasticity of the paraventricular nucleus of the hypothalamus. *Brain Structure and Function*, 223(6), 2547-2560.
18. **Kelly A.M.**, Saunders A.G. ^Φ, Ophir A.G. (2018) Mechanistic substrates of a life history transition in male prairie voles: Developmental plasticity in affiliation and aggression corresponds to nonapeptide neuronal function. *Hormones and Behavior*, 99:14-24.
17. Stevenson T.J., Alward B.A., Ebling F.J.P., Fernald R.D., **Kelly A.M.**, Ophir A.G. (2017) The value of comparative animal research: the application of Krogh's principle facilitates scientific discoveries. *Policy Insights from the Behavioral and Brain Sciences*, Article 745097.
16. **Kelly A.M.**, Hiura L.C., Saunders A., Ophir A.G. (2017) Oxytocin neurons exhibit extensive functional plasticity due to offspring age in mothers and fathers. *Integrative and Comparative Biology*. icx036, <https://doi.org/10.1093/icb/icx036>.
15. **Kelly A.M.** and Vitousek M.N. (2017) Dynamic modulation of sociality and aggression: An examination of plasticity within endocrine and neuroendocrine systems. *Philosophical Transactions of the Royal Society London B*, 372:1727: 20160243.
14. **Kelly A.M.** and Ophir A.G. (2015) Compared to what: What can we say about nonapeptide function and social behavior without a frame of reference? *Current Opinion in Behavioral Sciences*, 6, 97-103.
13. **Kelly A.M.** and Goodson J.L. (2015) Interactions of multiple dopamine cell groups reflect personality, sex, and social context in highly social finches. *Behavioural Brain Research*, 280, 101-112.
12. **Kelly A.M.** and Goodson J.L. (2014) Social and stress-related functions of specific vasopressin oxytocin cell groups in vertebrates: What do we really know? *Frontiers in Neuroendocrinology*, 35, 512-529.
11. **Kelly A.M.** and Goodson J.L. (2014) Hypothalamic oxytocin and vasopressin neurons exert sex-specific effects on pair bonding, gregariousness and aggression in finches. *Proceedings of the National Academy of Sciences of the United States of America*, 111, 6069-6074.
10. **Kelly A.M.** and Goodson J.L. (2013) Personality is tightly coupled to vasopressin-oxytocin neuron activity in a gregarious finch. *Frontiers in Behavioural Neuroscience*, 8,55.
9. **Kelly A.M.** and Goodson J.L. (2013) Behavioral relevance of species-specific vasotocin anatomy in gregarious finches. *Frontiers in Neuroscience*, 2, 242.
8. **Kelly A.M.** and Goodson J.L. (2013) Functional significance of a phylogenetically widespread sexual dimorphism in vasotocin/vasopressin production. *Hormones and Behavior*, 64, 840-846.
7. Goodson J.L., **Kelly A.M.**, Kingsbury M.A., Thompson R.R. (2012) An aggression-specific cell type in the anterior hypothalamus of finches. *Proceedings of the National Academy of Sciences of the United States of America* 109, 13847-52.
6. Goodson J.L., **Kelly A.M.**, Kingsbury M.A. (2012) Evolving nonapeptide mechanisms of gregariousness and social diversity in birds. *Hormones and Behavior* 61, 239-50.
5. **Kelly A.M.**, Kingsbury M.A., Hoffbuhr K., Schrock S.E., Waxman B., Kabelik D., Thompson R.R., Goodson J.L. (2011) Vasotocin neurons and septal V1a-like receptors potently modulate songbird flocking and responses to novelty. *Hormones and Behavior* 60, 12-21.
4. Kingsbury M.A., **Kelly A.M.**, Schrock S.E., Goodson J.L. (2011) Mammal-like organization of the avian midbrain central gray and a reappraisal of the intercollicular nucleus. *PLoS One* 6 e20720.

3. Kabelik D., **Kelly A.M.**, Goodson J.L. (2010) Dopaminergic regulation of mate competition aggression and aromatase-Fos colocalization in vasotocin neurons. *Neuropharmacology* 58, 117-25.
2. Goodson J.L., Kabelik D., **Kelly A.M.**, Rinaldi J., Klatt J.D. (2009) Midbrain dopamine neurons reflect affiliation phenotypes in finches and are tightly coupled to courtship. *Proceedings of the National Academy of Sciences of the United States of America* 106, 8737-42.
1. Goodson J.L., Rinaldi J., **Kelly A.M.** (2009) Vasotocin neurons in the bed nucleus of the stria terminalis preferentially process social information and exhibit properties that dichotomize courting and non-courting phenotypes. *Hormones and Behavior* 55, 197-202.

Invited Talks (reversed chronological order)

5. **Kelly, A.M.** Neural mechanisms of sociality. Max Planck Institute of Ornithology. Konstanz, Germany. November 2018.
4. **Kelly, A.M.** The influence of family dynamics on developmental trajectories and modulation of social behavior in prairie voles. Society for Integrative and Comparative Biology. New Orleans, LA, USA. January 2017.
3. **Kelly, A.M.** Species-specific vasotocin modulation of affiliative behavior in gregarious finches. Behaviour Conference: joint meeting of the International Ethological Conference, the Australasian Society for the Study of Animal Behaviour, and the Australasian Evolution Society. Cairns, Queensland, Australia. August 2015.
2. **Kelly, A.M.** Nonapeptide mechanisms of avian social behavior. Annual meeting of the Society for Behavioral Neuroendocrinology. Asilomar, CA, USA. June 2015.
1. **Kelly, A.M.** Keynote: Living large and burning bright: A brief glance at the contributions of James L. Goodson to social neuroendocrinology and his community. Annual Indiana University Animal Behavior Conference. Bloomington, IN, USA. April 2015.

Conference Presentations (reversed chronological order)

(^Φ indicates undergraduate student)

23. Ophir A.G. and **Kelly A.M.** (2018) The impact of the early life family environment on behavior, nonapeptides, and the epigenome of offspring. Joint meeting of the International Congress of Neuroendocrinology and the Society for Behavioral Neuroendocrinology (peer-reviewed and accepted talk).
22. Horowitz, R.G. ^Φ and **Kelly A.M.** (2018) Neural correlates of aggression in prairie voles. Cornell Undergraduate Psychology Conference (poster).
21. **Kelly A.M.** and Ophir A.G. (2017) The impact of the early life family environment on behavior, nonapeptides, and the epigenome of offspring. Annual meeting of the Society for Social Neuroscience (poster).
20. **Kelly A.M.**, Hiura L.C., Ophir A.G. (2017) Nonapeptide neural plasticity throughout development: Early anatomy and function in the prairie vole. Annual meeting of the Society for Behavioral Neuroendocrinology (poster).
19. Hiura L.C., **Kelly A.M.**, Ophir A.G. (2017) The ontogeny of dopaminergic neurons and their activity across social contexts. Annual meeting of the Society for Behavioral Neuroendocrinology (poster).
18. **Kelly A.M.**, Hiura L.C., Saunders A. ^Φ, Ophir A.G. (2016) Neuropeptide responses to offspring separation: A comparison of the maternal and paternal brain. Annual meeting of the Society for Behavioral Neuroendocrinology (poster).

17. **Kelly A.M.** and Goodson J.L. (2014) Sexually differentiated functions of amygdalar and hypothalamic oxytocin and vasopressin neurons. 8th International Conference on Hormones, Brain and Behavior (talk).
16. **Kelly A.M.** (2013) Social functions of nonapeptide cell groups. Meeting for Common Themes in Reproductive Diversity (IU training grant) (talk).
15. **Kelly A.M.** (2013) Social functions of a sexually dimorphic cell group. Annual Indiana University Animal Behavior Conference (talk).
14. **Kelly A.M.** and Goodson J.L. (2013) Functional significance of a phylogenetically widespread sexual dimorphism. Annual meeting of the Society for Behavioral Neuroendocrinology (poster).
13. **Kelly A.M.** (2012) Nonapeptide modulation of songbird flocking and responses to novelty: sex differences and similarities. Annual Symposium of the W.M. Keck Center for Behavioral Biology (talk).
12. **Kelly A.M.** and Goodson J.L. (2012) Hypothalamic and amygdalar vasotocin neurons differentially modulate songbird flocking and responses to novelty. Annual meeting of the Society for Behavioral Neuroendocrinology (poster).
11. **Kelly A.M.** (2011) Nonapeptide modulation of songbird flocking and responses to novelty. Joint conference of the Animal Behavior Society and The International Ethological Conference (talk).
10. **Kelly A.M.** (2011) Neural mechanisms of behavioral phenotypes in finches. Indiana University EEB Brown Bag seminar (talk).
9. **Kelly A.M.** and Goodson J.L. (2011) Antisense knockdown of BSTm vasotocin cells produces sex-specific effects on sociality and responses to novelty. Biology of Prosocial Behavior Workshop at Emory University (poster).
8. **Kelly A.M.** and Goodson J.L. (2011) Activity of nonapeptide and dopamine neurons reflects sex, social context, and behavioral phenotype in male and female zebra finches. Annual meeting of the Society for Behavioral Neuroendocrinology (poster).
7. Goodson, J.L., **Kelly A.M.**, Thompson R.R., Kingsbury M.A. (2011) Antisense knockdown of VIP in the anterior hypothalamus reduces aggression in a territorial finch. Annual meeting of the Society for Behavioral Neuroendocrinology (poster).
6. **Kelly A.M.**, Kingsbury M.A., Hoffbuhr K., Schrock S.E., Waxman B., Kabelik D., Thompson RR, Goodson JL (2010) Sociality and boldness in male zebra finches are decreased by vasotocin antisense oligonucleotide infusions into the bed nucleus of the stria terminalis and V1a antagonist infusions into the septum. Annual meeting of the Society for Behavioral Neuroendocrinology (poster).
5. **Kelly A.M.**, Thompson R.R., Schrock S.E., Kabelik D., Kingsbury M.A., Goodson J.L. (2010) Sociality and boldness in male zebra finches are decreased by vasotocin antisense oligodeoxynucleotide infusions into the bed nucleus of the stria terminalis, a major locus for behavioral diversity. Annual Indiana University Animal Behavior Conference (poster).
4. **Kelly, A.M.** and Goodson, J.L. (2009) Primary behavioral phenotypes in male and female zebra finches and their relationship to corticosterone. Annual meeting of the Society for Behavioral Neuroendocrinology (poster).
3. Goodson, J.L., Rinaldi, J., Gorobet, O., **Kelly, A.M.**, Kemp, C.L., Ki, D.L. (2008) Duds and studs: functional and anatomical profiles of vasotocin and dopamine systems differentiate courting and non-courting zebra finches. Annual meeting of the Society for Integrative and Comparative Biology (contributed talk).

2. Goodson, J.L., Rinalid, J., **Kelly, A.M.**, Kabelik, D. (2008) Duds and studs: Vasotocin and dopamine systems differentiate courting and non-courting male zebra finches. Annual meeting of the Society for Behavioral Neuroendocrinology (poster).
1. Kingsbury, M.A., **Kelly A.M.**, Goodson, J.L. (2008) Mammal-like organization of the avian central gray. Annual meeting of the Society for Behavioral Neuroendocrinology (poster).

Scientists Trained

Graduate Students Supervised:

Emory University:

2018 –	Juliana Araujo	Enrolled Max Planck Institute of Ornithology
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Undergraduate Students Supervised:

Indiana University:

2008 – 2010	John Murray, MD	Internal Medicine Resident
2009 – 2011	Katherine Miller, MD	OBGYN Resident
2011 – 2014	Paola Guardado	Indiana University Biology Major (2015)

Cornell University:

2014 – 2015	Jie Ong	Queens University (M.A. 2018)
2014 – 2016	Chang Kim	Cornell Psychology Major (2015)
2014 – 2017	Rachel Margariti	Enrolled NYU (D.M.D.)
2014 – 2017	Alex Saunders	Cornell Psychology - Honors (2016)
2014 – 2017	Marissa Rice	Cornell Biology Major (2017)
2015 – 2016	Jeremy Pustilnik	Cornell Biology Major (2018)
2016 – Pres	Kelly Pellegrino	Cornell Biology Major (2018))
2016 – Pres	Calvin Sowah	Enrolled (Biological Sciences)
Summer 2017	Ruben de Klerk	Amsterdam University Neuroscience (2018)
2017 – Pres	Rebecca Horowitz	Enrolled (Biological Sciences)

Highschool Students Supervised:

Cornell University:

2015 – 2016	Ruth Witmer	Skidmore College Class of 2020
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Courses Taught

Spring 2019	Psychology 110: Introduction to Psychology
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Department Service

Committees:

2018 – Present	Graduate Curriculum Committee
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University Service

Undergraduate Honors Committees:

2018 – Present	Sujith Swarna	Neuroscience and Behavioral Biology, Manns Lab
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Graduate Student Faculty Advisory Committees:

2018 – Present Mackenzie Prichard Psychology (NAB), Maney Lab

Graduate Student/Postdoc Career Development Service:

October 2018 Professional Development Seminar as a part of NAB seminar

Community Service

2017 – 2018 Planning Committee Member for Cornell Responsible Conduct of Research Workshop sponsored by the Office of Research Integrity and Assurance

2016 - present Consultant for NIH NIMH R01 awarded to Donna Maney, Emory University
Title: A Unique Natural Model for Studying the Mechanisms Underlying Social Behavior

2015 Symposium discussion leader for Cornell Responsible Conduct of Research Workshop sponsored by the Office of Research Integrity and Assurance

Professional Memberships and Reviewer Service

Society Memberships

2016- Society for Integrative and Comparative Biology
2014- Society for Neuroscience
2013- Society for Social Neuroscience
2008- Society for Behavioral Neuroendocrinology

Editorial Board Membership

2017- Hormones and Behavior

Reviewer service

National Science Foundation CAREER Program (Ad hoc)
Proceedings of the Royal Society London B: Biological Sciences
Philosophical Transactions of the Royal Society B: Biological Sciences
Hormones and Behavior
Behavioral Brain Research
Psychoneuroendocrinology
Physiology and Behavior
Journal of Ethology
Animal Behaviour
Current Opinion in Behavioral Science
Integrative and Comparative Biology
American Chemical Society (ACS) Chemical Neuroscience

Outreach

Founder of Tea Time: Supporting Women in Science at Cornell

2015 – 2018

A public forum for graduates and professionals that serves as a platform for women to discuss research and life as female scientists. Monthly meetings range from mini-workshops to panel discussions with local professionals to group discussions. Meeting topics include being a mother in academia, alternative science careers, sexual harassment, techniques in teaching, pursuing outreach, etc.

Expand Your Horizons

2015 – 2018

This program is a mini-conference for middle school girls who sign up for various workshops and participate in hands-on activities in STEM fields. I serve as a lab lead for the sheep brain dissection for the Brains! Workshop hosted by the Psychology Department.

New Visions Program

2015 – 2017

This program allows high school students to explore careers in the life sciences, and is an excellent way to expose pre-college students to different fields within the sciences, gain research experience, and earn college credits.

Alumni Discovery Initiative at the University of California, San Diego

2013 – 2016

A program that puts UCSD alumni into contact with current UCSD undergraduate psychology students to discuss career opportunities and knowledge about graduate school

Women in Science Program at Indiana University

2008 – 2013

This program hosts annual conferences where undergraduate women in science present their research from working in STEM labs. I served as a graduate advisor, discussion panel member, and poster judge.