

Megan M. Mahoney
Associate Professor

University of Illinois
Department of Comparative Biosciences
3639 VMBSB MC-002
2001 S. Lincoln Avenue Urbana, IL
61802
(217) 333-7578 (office)
Mmm1@illinois.edu

EDUCATION

Ph.D. 2003
Dual degrees in Zoology and Ecology, Evolutionary Biology and Behavior (EEBB)
Michigan State University

Bachelor of Arts in Biology 1995
Bates College (1993-1995)
Smith College (1991-1993)

POSITIONS

Associate Professor 2016-current
University of Illinois
Comparative Biosciences

Affiliate, Institute for Genomic Biology 2023-current

Affiliate, Division of Nutritional Sciences 2023-current

Director, NIH T35 Training in Biomedical Sciences 2022-current

Affiliate, Neuroscience Program 2008-current

Assistant Professor 2008-2016
University of Illinois
Comparative Biosciences, Program in Neuroscience

Assistant Research Scientist 2006-2008
University of Michigan
Department of Psychology

Postdoctoral Research Fellow 2003-2006
University of Michigan

Graduate Assistant 1997-2003
Michigan State University

Research Assistant
The Children's Hospital
Harvard Medical School

1995-1997

HONOR AND RECOGNITIONS

Arnold O. Beckman Award for Research Excellence, University of Illinois	2022
NSO Faculty Award of Excellence, Neuroscience Program	2021
Dr. Gordon and Mrs. Helen Kruger All-Round Excellence Award, College of Veterinary Medicine	2020
Arnold O. Beckman Award for Research Excellence, University of Illinois	2012
Research Academy Member, College of ACES, University of Illinois: 2 semester intensive program for junior faculty	2012
Arnold O. Beckman Award for Research Excellence, University of Illinois	2008
Young Investigator Award, Society for Behavioral Neuroendocrinology	2006
National Research Service Award Environmental Toxicology Training Grant 5T32ES007062-23	2005-2006
National Research Service Award Reproductive Endocrinology Training Grant 5T32HD007048-32	2003-2005
Conference on Neural Control of Behavior full travel award	2004
Graduate School dissertation completion fellowship	2002
Vessa Notchev Fellowship from Graduate Women in Science	2002
NIMH-Society for Behavioral Neuroendocrinology travel award	2001
Society for Research on Biological Rhythms student travel award	1998
EEBB Program Michigan State University, Research Award	1997-2002
Zoology Department Michigan State University, Research Award	1997-2002
College of Natural Sciences Recruiting Fellowship	1997

RESEARCH SUPPORT

Current

1R03ES035189

4/01/23-3/31/2025

NIH

The impact of a neonicotinoid pesticide on neural functions underlying learning and memory

\$100,000 direct costs

Role: PI

1R01ES032163-01

8/17/2020-5/31/2024 (NCE)

NIH

Gender and sex differences in phthalate-induced toxicity in the reproductive system

This project examines the mechanisms by which a phthalate mixture impacts male and female reproductive physiology and behaviors.

\$100,000 direct costs

Role: co-PI

Completed

Beckman Seed Grant

1/1/2023-6/1/2023

University of Illinois at Urbana Champaign

Impacts of prenatal phthalate exposure on the structural and functional development of connectivity networks in CNS regions that mediate social behavior.

\$13,125 direct costs

Role: Co-PI

Arnold O. Beckman Campus Research Board Grant

4/25/2022-10/31/2024

University of Illinois at Urbana Champaign

The impact of a pesticide on cognitive behaviors, acetylcholine receptor expression, and acetylcholine release in male and female mice.

\$23,000 direct costs

Role: PI

Center for Social and Behavioral Science Small Grant Program

7/31/2020-6/30/2022

University of Illinois at Urbana Champaign

The influence of depression and modifiable lifestyle factors on sleep in menopausal women

\$13,670 direct costs

Role: co-PI

Companion Animal Research Grant Program

1/2020-4/2021

The Association of Urinary Phthalate Metabolites with Feline Hyperthyroidism

\$9,312 direct costs

Role: PI

Carle Illinois Collaborative Research Seed Funding Program

8/2017-8/2021

Impact of hormonal changes and environmental chemicals on sleep disruptions in a population of menopausal women

\$50,000 direct costs

Role: PI

University of Illinois Campus Research Board

1/2013-12/2013

Arnold O. Beckman Award: This project determined the developmental period when estradiol modifies circadian rhythms

\$23,244 direct costs

Role: PI

University of Illinois Campus Research Board

1/2011-12/2012

This project determined the role of ovarian hormones on the development and expression of circadian rhythms

\$9,250 direct costs

Role: PI

Morris Animal Foundation First Investigator Award

10/2010-10/2011

This research examines metabolic, immune and endocrine rhythms in cats housed in light:dark

and constant light environments.

\$50,000 direct costs

Role: PI

University of Illinois Campus Research Board

1/2011-12/2011

This research profiled miRNA expression in the hearts of mice which cannot produce estradiol (aromatase deficient) and wildtype animals

\$3,800 direct costs

Role: Co-PI Bunick (PI)

University of Illinois Campus Research Board

9/2008

Arnold O. Beckman Award: To examine the role of estrogen in the regulation of vasoactive intestinal polypeptide receptor expression on gonadotropin releasing hormone neurons.

\$16,000 dDirect costs

Role: PI

TEACHING AWARDS AND EXPERIENCE

Dr. Erwin Small Teaching Excellence Award in Veterinary Medicine

Spring 2022

Kuhlenschmidt Innovative Teaching Award

Fall 2017

College of Veterinary Medicine

Dr. Erwin Small Teaching Excellence Award in Veterinary Medicine

Spring 2016

Faculty Mentor for Teaching

Fall 2012-2020

Nominated to mentor faculty in their teaching careers College of Veterinary Medicine

Outstanding Instructor Award

Spring 2012

Chicago Veterinary Medical Association

List of Teachers Ranked as Excellent

Every year

University of Illinois, must achieve a 4.4/5 pt scale 2010-current

Excellence-in-Teaching Citation

2003

University level award given to 6 graduate students (out of 7000+) each year

Michigan State University

Excellence-in-Teaching Citation

2003

Michigan State University

College of Natural Science

Neurotoxicology

2021, 2023

University of Illinois Urbana Champaign Department of Comparative Biosciences

Graduate level course taught in Spring of odd years

Structure and Function I, III: Neurobiology material

2009- current

University of Illinois Urbana Champaign Department of Comparative Biosciences

College of Veterinary Medicine (150+ first year students) Every fall and spring semester since 2009

Structure and Function I: Clinical Correlations 2009-current
University of Illinois Urbana Champaign Department
of Comparative Biosciences
College of Veterinary Medicine (150+ first year students) Every fall semester since 2009

Guest Lectures: 2018 every year
University of Illinois Urbana Champaign
NEUR 542: Interdisciplinary Approaches to Neuroscience
CB 554 Systems Toxicology 2013- odd years

Research Mentor Ongoing
University of Illinois Urbana Champaign

- 4 Ph.D. students finished 2012, 2014, 2020, 2022
- 2 Ph.D. students to finish 2025, 2026
- 1 Post-doctoral Fellow (2021-2024)

Undergraduate Research Mentor 2008-Ongoing
University of Illinois Urbana Champaign
Molecular and Cellular Biology, Comparative Biosciences, Integrative Biology, Psychology, and
Animal Science students (>40 total)

Summer Research Opportunity Program (SROP) Summer 2012, 2011, 2009
Undergraduate Research Advisor

- 3 students all matriculated to Ph.D programs

Merial Summer Research Training Program for Veterinary Students Summer 2014, 2013, 2012,
2009
Veterinary Student Research Advisor

- all are now practicing veterinarians

NIH T35 Summer Research Training Program for Veterinary Students Summer 2024, 2023, 2022
Veterinary Student research advisor

Summer Undergraduate Research Opportunity in Toxicology (SURETox) Summer 2024,
2023, 2022, 2021,
Undergraduate Research Advisor

SERVICE

Comparative Biosciences Advisory Committee 2022-current

Graduate College Executive Committee, UIUC 2020-2024

Admissions Advisory Committee Member, College of Veterinary Medicine 2020-2024

Admissions Committee Chair, Neuroscience Program 2019-2023

Executive Committee, Neuroscience Program 2019-2023

Seminar Committee Chair, Neuroscience Program	2019-2020
Director of Graduate Studies, Comparative Biosciences	2019-current
Chair, Educational Policy Committee, College of Veterinary Medicine	2019-2021
Organizer, Midwest Chronobiology Conference	May 2016
Educational Policy Committee, Department of Comparative Biosciences	2009-current
Educational Policy Committee, College of Veterinary Medicine	2009-2015, 2016-2022
Faculty Course Coordinator VM 602: Structure and Function I	2009-current
Faculty Course Coordinator VM 604: Structure and Function III	2017-current
Comparative Biosciences Department Seminar Coordinator (Spring)	2017-2020
Ad Hoc reviewer for NSF, NIH, Brain Research Foundation, Agence Nationale de la Recherche, UIUC	2019-current
Ad Hoc reviewer for journals including Frontiers in Neuroscience, Environmental Science, Toxicological Sciences, Behavioural Brain Research, Biology of Reproduction	2008-current

OUTREACH

Project NEURON (Novel Education for Understanding Research on Neuroscience) NSF SEPA funded project develops online interactive lessons, high school curricula, and professional development for participating high school teachers.	2010-2016
Brain Awareness Day Interactive presentations on biological rhythms	2012-2019 (Annually)
Coordinator of Brain Awareness Day	2018, 2019

PUBLICATIONS

- Hatcher K, Smith R, Chiang C, Flaws JA, Mahoney MM. Nocturnal hot flashes, but not serum hormone concentrations, as a predictor of insomnia in menopausal women: Results from the Midlife Women's Health Study. *J Womens Health (Larchmt)*. 2023.
- Hatcher KM, Smith RL, Li Z, Flaws JA, Davies CR, Mahoney MM. Preliminary findings reveal that phthalate exposure is associated with both subjective and objective measures of sleep in a small population of midlife women. *Maturitas*. 2022;157:62-5. doi: 10.1016/j.maturitas.2021.11.004.

3. Hatcher KM, Smith RL, Chiang C, Li Z, Flaws JA, Mahoney MM. Association of phthalate exposure and endogenous hormones with self-reported sleep disruptions: results from the Midlife Women's Health Study. *Menopause*. 2020. Epub 2020/08/03. doi: 10.1097/GME.0000000000001614. PubMed PMID: 32740484.
4. Balachandran RC, Hatcher KM, Sieg ML, Sullivan EK, Molina LM, Mahoney MM, Eubig PA. Pharmacological challenges examining the underlying mechanism of altered response inhibition and attention due to circadian disruption in adult Long-Evans rats. *Pharmacol Biochem Behav*. 2020;193:172915. Epub 2020/04/01. doi: 10.1016/j.pbb.2020.172915. PubMed PMID: 32224058.
5. Dailey, M.J. and M.M. Mahoney, *Circadian Changes in Gut Peptide Levels and Obesity, in Neurological Modulation of Sleep: Mechanisms and Function of Sleep Health*, R.R. Watson and V.R. Preedy, Editors. 2020, Academic Press.
6. Hatcher KM, Royston SE, Mahoney MM. Modulation of circadian rhythms through estrogen receptor signaling. *Eur J Neurosci*. 2020;51(1):217-28. Epub 2018/10/03. doi: 10.1111/ejn.14184. PubMed PMID: 30270552.
7. Hatcher, K. M., Willing, J., Chiang, C., Rattan, S., Flaws, J. A., & Mahoney, M. M. (2019). Exposure to di-(2-ethylhexyl) phthalate transgenerationally alters anxiety-like behavior and amygdala gene expression in adult male and female mice. *Physiol Behav*, 207, 7-14. doi: 10.1016/j.physbeh.2019.04.018
8. Hatcher, K. M., & Mahoney, M. M. 2018. Circadian Rhythms-Male. In M. K. Skinner (Ed.), *Encyclopedia of Reproduction* (Vol. 1, pp. 436-441): Academic Press.
9. Smith, R. L., Flaws, J. A., and Mahoney, M. M. 2018. Factors associated with poor sleep during menopause: results from the Midlife Women's Health Study. *Sleep Med*, 45, 98-105.
10. Robertson AL, Balachandran RC, Mahoney MM, Eubig PA. 2017. Circadian disruption affects initial learning but not cognitive flexibility in an automated set- shifting task in adult Long-Evans rats. *Physiol Behav* 179:226-234
11. Royston SE, Bunick D, Mahoney MM. 2016. Oestradiol exposure early in life programs daily and circadian activity rhythms in adult mice. *Journal of Neuroendocrinology* 28(1).
12. Blattner MS, Mahoney MM. 2015. Changes in estrogen receptor signaling alters the timekeeping system in male mice. *Behav Brain Research* 294:43-49.
13. Royston, S. E., A. G. Kondilis, S. V. Lord, N. Yasui, J. A. Katzenellenbogen and M. M. Mahoney. 2014. ESR1 and ESR2 differentially regulate daily and circadian activity rhythms in female mice. *Endocrinology* 155(7): 2613-2623.
14. Blattner, M. S. and M. M. Mahoney. 2014. Estrogen receptor 1 modulates circadian rhythms in adult female mice. *Chronobiology International* 31(5): 637- 644
15. Ayelet Ziv-Gal, A. Flaws, J.A., Mahoney, M., Miller, S.R, Zacur, H.A. and L. Gallicchio.

2013. Genetic polymorphisms in the AHR signaling pathway and CLOCK may be associated with sleep disturbances in midlife women. *Sleep Medicine* 14(9) 883-7
16. Blattner, M. and M. Mahoney. 2013 Phase response curve and cellular activation in response to light-pulse in the suprachiasmatic nucleus of two strains of mice with impaired responsiveness to estrogens. *Journal of Biological Rhythms* 28(4), 291-300.
 17. Blattner, M. and M. Mahoney. 2012. Circadian parameters are altered in two strains of mice with transgenic modifications of estrogen receptor subtype 1. *Genes, Brain and Behavior*. 11(7), 828-36.
 18. Steinberg, G. Byron, J. and M. Mahoney. 2012. A retrospective study of circadian and seasonal presentations of dogs with congestive heart failure: 119 cases (1997-2009). *Journal of Veterinary Emergency and Critical Care*. 22(3): 341-6. Doi: 10.1111/j.1476-4431.2012.00748.x.
 19. Colby, L.A., H.G. Rush, Mahoney, M, and T.M. Lee, The Degu, in *The Laboratory Rabbit, Guinea Pig, Hamster and Other Rodents*, M. Suckow, R.P. Wilson, and K.A. Stevens, Editors. 2012, Elsevier.
 20. Mong, J.A., Baker, F.C., Mahoney, M.M., Paul, K.N., Schwartz, M.D., Semba, K., Silver, R. 2011, Sleep, rhythms, and the endocrine brain: influence of sex and gonadal hormones. *J Neurosci*. 31, 16107-16.
 21. Brockman, R., Bunick, D. and M. Mahoney. 2011. Estradiol deficiency during development modulates the expression of circadian and daily rhythms in male and female aromatase knockout mice. *Hormones and Behavior*. 60(4), p. 439- 47.
 22. Mahoney, M.M. Rossi, B.V, Hagenauer, M. H. and T. Lee. 2011. Characterization of the estrous cycle in *Octodon degus*. *Biology of Reproduction*. 84(4):664-71.
 23. Mahoney, M.M. and V. Padmanabhan. 2010. Developmental programming: Impact of fetal exposure to endocrine disrupting chemicals on gonadotropin- releasing hormone and estrogen receptor mRNA in sheep hypothalamus. *Toxicology and Applied Pharmacology*. 247(2):98-104.
 24. Mahoney, M.M. 2010. Shift work, jet lag, and female reproduction. *International Journal of Endocrinology*. Epub 2010 March 8.
 25. Mahoney, M.M., Ramanathan, C., Hagenauer, M.H. Thompson, R. Lee, T., and L. Smale. 2009. Daily rhythms and sex differences in vasoactive intestinal polypeptide, VIPR2 receptor, and arginine vasopressin mRNA in the suprachiasmatic nucleus of a diurnal rodent, *Arvicanthis niloticus*. *European Journal of Neuroscience*. 30(8): 1537-43.
 26. Mahoney, M.M., Smale L., and T. Lee. 2009. Daily immediate early gene expression in the suprachiasmatic nucleus of male and female *Octodon degus*. *Chronobiology International*. 26(5): 821-83.
 27. Gorton, L.M., Mahoney, M.M., Magorien, J.E., Lee, T.M. and R.I. Wood. 2009. Estrogen receptor immunoreactivity in late-gestation fetal lambs. *Biology of Reproduction*. 80(6): 1152-1159.

28. Mahoney, M.M., Ramanathan, C. and L. Smale. 2007. Tyrosine hydroxylase positive neurons and their contacts with vasoactive intestinal peptide-containing fibers in the hypothalamus of the diurnal murid rodent, *Arvicanthis niloticus*. *Journal of Chemical Neuroanatomy*. 33:131-139.
29. Hummer, DH, Jechura T., Mahoney, M.M., and T. Lee. 2007. Gonadal Hormone Effects on Entrained and Free-Running Circadian Activity Rhythms in the Developing Diurnal Rodent, *Octodon degus*. *American Journal of Physiology: Regulatory, Integrative and Comparative Physiology*. 292(1):R586-597.
30. Jechura, T.J., Mahoney, M.M., Stimpson, C.D. and T. Lee. 2006. Odor specific effects on reentrainment following phase advances in the diurnal rodent *Octodon degus*. *American Journal of Physiology: Regulatory, Integrative and Comparative Physiology*. 292(6):R1808-1816.
31. Mahoney, M.M. and L. Smale. 2005. Arginine vasopressin and vasoactive intestinal polypeptide fibers make appositions with gonadotropin releasing hormone and estrogen receptor cells in the diurnal rodent *Arvicanthis niloticus*. *Brain Research*. 1049:156-164
32. Mahoney, M.M. and L. Smale. 2005. A daily rhythm in mating behavior in a diurnal murid rodent *Arvicanthis niloticus*. *Hormones and Behavior*. 47:8-13
33. Lee, T.M., Hummer, D.L., Jechura, T.J and Mahoney, M.M. 2004. Pubertal Development of Sex Differences in Circadian Function: an Animal Model. *New York Academy of Sciences*, 1021:262-275.
34. Mahoney, M. M., C. L. Sisk, Ross, H. E. and L. Smale. 2004. Circadian regulation of gonadotropin-releasing hormone neurons and the preovulatory surge in luteinizing hormone in the diurnal rodent, *Arvicanthis niloticus*, and in a nocturnal rodent, *Rattus norvegicus*. *Biology of Reproduction*, 70(4):1049-54.
35. Mahoney, M. M. 2003. Sex, surges and circadian rhythms: the timing of reproductive events in a diurnal rodent. *Zoology*. East Lansing, Michigan State University: 111.
36. Nunes, S., McElhinny, T.L., Mahoney, M.M., and L. Smale. 2002. Effects of photoperiod on the reproductive condition of Nile grass rats from an equatorial population. *African Journal of Ecology*, 40:295-302.
37. Mahoney, M.M., Bult, A., and L. Smale. 2001. Phase response curve and light induced Fos expression in the suprachiasmatic nucleus and adjacent hypothalamus of *Arvicanthis niloticus*. *Journal of Biological Rhythms*, 16(2):149- 162.
38. Mahoney, M.M., Nunez, A.A., and L. Smale. 2000. Calbindin and Fos within the suprachiasmatic nucleus and the adjacent hypothalamus of *Arvicanthis niloticus* and *Rattus norvegicus*. *Neuroscience*, 99(3):565-575.
39. Blanchong, J., McElhinny, T.L., Mahoney, M.M., and L. Smale. 1999. Nocturnal and diurnal rhythms in the unstriped Nile rat, *Arvicanthis niloticus*. *Journal of Biological Rhythms*, 14: 364-377.

40. Rose, S. Novak, C., Mahoney, M.M., Nunez, A. and, L. Smale. 1999. Fos expression within vasopressin-containing neurons in the suprachiasmatic nucleus of diurnal compared to nocturnal rodents. *Journal of Biological Rhythms*, 14:37-46.
41. Huttner, KM, Brezinski-Caliguri, DJ, Mahoney, M.M., and G. Diamond. 1998. Antimicrobial expression is developmentally regulated in the ovine gastrointestinal tract. *Journal of Nutrition*, 128 (2 suppl.) 297S-299S