

ARAS PETRULIS, Ph.D.
Curriculum Vitae

Neuroscience Institute
988 Petit Science Center
Georgia State University
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Atlanta, GA 30303

Personal web page:
<https://cas.gsu.edu/profile/aras-petrulis/>
Lab web page:
<https://www.petrulis-devrieslab.com>

EDUCATION/TRAINING

Post-doctoral fellow, Department of Psychology, 1998 – 2002
Boston University, Boston, MA
Advisor: Dr. Howard Eichenbaum (deceased)

Ph.D., Psychology, 1998
Cornell University, Ithaca, NY
Advisor: Dr. Robert E. Johnston (deceased)
*Dissertation: Neural Mechanism of Social Odor Recognition in Female Golden Hamsters (*Mesocricetus auratus*)*

B.S., Psychology (cum laude), 1991
Arizona State University, Tempe, AZ

PROFESSIONAL POSITIONS

Associate Director of Graduate Studies, 2019 – present
Neuroscience Institute, Georgia State University, Atlanta, GA

Director of Undergraduate Studies, 2015 – 2017
Neuroscience Institute, Georgia State University, Atlanta, GA

Associate Director of Undergraduate Studies, 2011 – 2015
Neuroscience Institute, Georgia State University, Atlanta, GA

Associate Professor, 2008 – present
Department of Psychology and Neuroscience Institute
Georgia State University, Atlanta, GA

Chair, Neuropsychology and Behavioral Neuroscience Program, 2006 – 2008
Department of Psychology, Georgia State University, Atlanta, GA

Assistant Professor, 2002 – 2008
Department of Psychology, Georgia State University, Atlanta, GA

Visiting Lecturer, 1999

Department of Brain and Cognitive Sciences
Massachusetts Institute of Technology, Cambridge, MA.

RESEARCH SUPPORT

External

Current

R01 MH121603 12/2019 – 10/2024
National Institute of Mental Health
Title: *Sex differences in the neural control of social behavior*
Total cost: \$1,946,563
Role: PI (MPI)

R03 MH120549 06/2019 – 06/2021
National Institute of Mental Health
Title: *Neuropeptide receptor regulation of social communication*
Total cost: \$154,916
Role: PI (MPI)

Completed

R21 MH111104 07/2016 – 06/2019 (no-cost extension)
National Institute of Mental Health
Title: *The neuropeptide architecture of social communication*
Total cost: \$416,625
Role: PI (MPI)

R01 MH072930 01/2005 – 12/2010 (no-cost extension)
National Institute of Mental Health
Title: *The neurobiology of social attraction and preference*
Total cost: \$1,170,719
Role: PI

F32 MH11949 (National Research Service Award - postdoctoral) 12/1998 – 12/2001
National Institute of Mental Health
Title: *Physiology of individual discrimination/recognition*
Total cost: \$94,236
Role: PI

F31 MH11138 (National Research Service Award - predoctoral) 01/1996 – 01/1998
National Institute of Mental Health
Title: *Neural mechanisms of social recognition*
Total cost: \$27,504
Role: PI

Internal
Current

Seed Grant 07/2020 – 06/2021
GSU Brains and Behavior Program
Title: *Generation of Preliminary Data for R01 submission: Developing a conditional vasopressin 1a receptor knockout mouse line*
Total cost: \$25,000
Role: PI

Completed

Seed Grant 07/2016 – 06/2017
GSU Brains and Behavior Program
Title: *Optogenetic control of social communication*
Total cost: \$29,223
Role: PI

Seed Grant 07/2012 – 06/2013
GSU Brains and Behavior Program
Title: *Linking neural plasticity to social behavior in the medial amygdala*
Total cost: \$30,000
Role: co-PI

Seed Grant 07/2011 – 06/2012
GSU Brains and Behavior Program
Title: *The role of the medial amygdala in the processing of social signals*
Total cost: \$26,500
Role: PI

Venture Grant 07/2008 – 06/2009
NSF Center for Behavioral Neuroscience (GSU)
Title: *Status dependent neural encoding of socially relevant olfactory stimuli*
Total cost: \$26,330
Role: co-I

Seed Grant 07/2005 – 06/2006
GSU Brains and Behavior Program
Title: *Neuroanatomy of sexual solicitation: vaginal marking in female golden hamsters*
Total cost: \$26,300
Role: PI

Venture Grant 07/2003 – 06/2005
NSF Center for Behavioral Neuroscience (GSU)
Title: *The function of c-fos in sexual behavior*
Total cost: \$30,000
Role: PI

PUBLICATIONS

(*graduate student author; **undergraduate author)

In preparation, submitted or under review manuscripts

Whylings J*, Rigney N*, de Vries GJ, **Petrulis A**. Reduction in vasopressin cells in the suprachiasmatic nucleus in mice increases anxiety and alters fluid balance, in preparation.

Rigney N*, de Vries GJ, **Petrulis A**. Sexually dimorphic vasopressin modulates social investigation and communication in sex-specific ways, in preparation.

Peer-reviewed articles

Whylings J*, Rigney N*, de Vries GJ, **Petrulis A** (2020) Removal of vasopressin cells from the paraventricular nucleus of the hypothalamus enhances LPS-induced sickness behavior in mice. *Journal of Neuroendocrinology*, doi: 10.1111/jne.12915

Rigney N*, Whylings J*, de Vries GJ, **Petrulis A** (2020) Sex differences in the control of social investigation and anxiety by vasopressin cells of the paraventricular nucleus of the hypothalamus. *Neuroendocrinology*, doi: 10.1159/000509421 (PMID: 32541145)

Rigney N*, Beaumont R**, **Petrulis A** (2020) Sex differences in vasopressin 1a receptor regulation of social communication within the lateral habenula and dorsal raphe of mice. *Hormones and Behavior*, 121:104715. doi: 10.1016/j.yhbeh.2020.104715. (PMID: 32067962)

Whylings J*, Rigney N*, Peters NV*, de Vries GJ, **Petrulis A** (2020) Sexually dimorphic role of BNST vasopressin cells in sickness and social behavior in male and female mice. *Brain Behavior and Immunity*, 83, 68-77. <https://doi.org/10.1016/j.bbi.2019.09.015> (PMID: 31550501)

Rigney N*, Whylings J*, Mieda M, de Vries GJ, **Petrulis, A** (2019) Sexually dimorphic vasopressin cells modulate social investigation and communication in sex-specific ways. *eNeuro*, 6(1), <https://doi.org/10.1523/ENEURO.0415-18.2019> (PMID: 30693316)

Petrulis A (2013) Chemosignals and hormones in the neural control of mammalian sexual behavior. *Frontiers in Neuroendocrinology*, 34(4), 255-267, doi: 10.1016/j.yfrne.2013.07.007 (PMID: 23911848)

Petrulis A (2013) Chemosignals, hormones and mammalian reproduction *Hormones and Behavior*, 63(5), 723-741. doi: 10.1016/j.yhbeh.2013.03.011 (PMID: 23545474)

Martinez LA*, Levy MJ*, **Petrulis A** (2013) Endogenous oxytocin is necessary for preferential Fos expression to male odors in the bed nucleus of the stria terminalis in female Syrian hamsters. *Hormones and Behavior*, 64(4), 653–664. doi: 10.1016/j.yhbeh.2013.08.016 (PMID: 24012945)

Martinez LA*, **Petrulis A** (2013) The medial preoptic area is necessary for sexual odor preference, but not sexual solicitation, in female Syrian hamsters. *Hormones and Behavior*, 63(4), 606-614. doi: 10.1016/j.yhbeh.2013.02.003 (PMID: 23415835)

Paisley JC*, Huddleston GG*, Carruth LL, **Petrulis A**, Grober MS, Clancy AN (2012) Sexual responses of the male rat medial preoptic area and medial amygdala to estrogen I: Site specific suppression of estrogen receptor alpha. *Hormones and Behavior*, 62(1), 50-57. doi: 10.1016/j.yhbeh.2012.04.018 (PMID: 22565217)

Been LE*, **Petrulis A** (2012) Dissociated functional pathways for appetitive and consummatory reproductive behaviors in male Syrian hamsters. *Hormones and Behavior*, 61(2), 204-211. doi: 10.1016/j.yhbeh.2011.12.007 (PMID: 22210198)

Been LE*, Bauman JM*, **Petrulis A**, Chang Y-H (2012) X-ray kinematics analysis of vaginal scent marking in female Syrian hamsters. *Physiology and Behavior*, 105(4), 1021-1027. doi: 10.1016/j.physbeh.2011.11.007 (PMID: 22138441)

Martinez LA*, **Petrulis A** (2011) The bed nucleus of the stria terminalis is critical for sexual solicitation, but not for opposite-sex odor preference, in female Syrian hamsters. *Hormones and Behavior*, 60(5), 651-659. doi: 10.1016/j.yhbeh.2011.08.018 (PMID: 21925504)

Been LE*, **Petrulis A** (2011) Chemosensory and hormone information is relayed directly between the medial amygdala, posterior bed nucleus of the stria terminalis, and medial preoptic area in male Syrian hamsters. *Hormones and Behavior*, 59(4), 536-548. doi: 10.1016/j.yhbeh.2011.02.005 (PMID: 21316366)

Martinez LA*, Albers HE, **Petrulis A** (2010) Blocking oxytocin receptors inhibits vaginal marking to male odors in female Syrian hamsters. *Physiology of Behavior*, 101(5), 685-692. doi: 10.1016/j.physbeh.2010.08.007 (PMID: 20723552)

Been LE*, **Petrulis A** (2010) The role of the medial preoptic area in appetitive and consummatory reproductive behaviors depends on sexual experience and odor volatility in male Syrian hamsters. *Neuroscience*, 170(4), 1120-1132. doi: 10.1016/j.neuroscience.2010.08.029 (PMID: 20732389)

Been LE*, **Petrulis A** (2010) Lesions of the posterior bed nucleus of the stria terminalis eliminate opposite-sex odor preference and delay copulation in male Syrian hamsters: role of odor volatility and sexual experience. *European Journal of Neuroscience*, 32(3), 483-493. doi: 10.1111/j.1460-9568.2010.07277 (PMID: 20597978)

Maras PM*, **Petrulis A** (2010) Anatomical connections between the anterior and posterodorsal sub-regions of the medial amygdala: Integration of odor and hormone signals. *Neuroscience*, 170(2), 610-622. doi: 10.1016/j.neuroscience.2010.06.075 (PMID: 20620195)

Maras PM*, **Petrulis A** (2010) The anterior medial amygdala transmits sexual odor information to the posterior medial amygdala and related forebrain nuclei. *European Journal of Neuroscience*, 32(3), 469-482. doi: 10.1111/j.1460-9568.2010.07289 (PMID: 20704594)

Maras PM*, **Petrulis A** (2010) Lesions that functionally disconnect the anterior and posterodorsal sub-regions of the medial amygdala eliminate opposite-sex odor preference in male Syrian hamsters (*Mesocricetus auratus*). *Neuroscience*, 165, 1052-1062. doi: 10.1016/j.neuroscience.2009.11.024 (PMID: 19931356)

Petrulis A (2009) Neural mechanisms of individual and sexual recognition in Syrian hamsters (*Mesocricetus auratus*). *Behavioural Brain Research*, 200, 260-267. doi: 10.1016/j.bbr.2008.10.027 (PMID: 19014975)

Maras PM*, **Petrulis A** (2008) The posteromedial cortical amygdala regulates copulatory behavior, but not sexual odor preference, in the male Syrian hamster (*Mesocricetus auratus*). *Neuroscience*, 156, 425-435. doi: 10.1016/j.neuroscience.2008.08.004 (PMID: 18762231)

Maras PM*, **Petrulis A** (2008) Olfactory experience and the development of odor preference and vaginal marking in female Syrian hamsters. *Physiology and Behavior*, 94, 545-551. doi: 10.1016/j.physbeh.2008.03.012 (PMID: 18485425)

Eidson LN**, Maras PM*, Epperson E**, **Petrulis A** (2007) Female hamster preference for odors is not regulated by circulating gonadal hormones. *Physiology and Behavior*, 91, 134-141. <https://doi.org/10.1016/j.physbeh.2007.01.025> (PMID: 17374544)

Maras PM*, **Petrulis A** (2006) Chemosensory and steroid-responsive regions of the medial amygdala regulate distinct aspects of opposite-sex odor preference in male Syrian hamsters. *European Journal of Neuroscience*, 24, 3541-3552. <https://doi.org/10.1111/j.1460-9568.2006.05216.x> (PMID: 17229102)

Petrulis A, Alvarez P, Eichenbaum H (2005) Neural correlates of social odor recognition and the representation of individual-distinctive social odors within entorhinal cortex and ventral subiculum. *Neuroscience*, 130, 259-274. <https://doi.org/10.1016/j.neuroscience.2004.09.001> (PMID: 15561442)

Petrulis A, Weidner M**, Johnston RE (2004) Recognition of competitors by male golden hamsters. *Physiology and Behavior*, 81, 629-638. <https://doi.org/10.1016/j.physbeh.2004.03.001> (PMID: 15178156)

Petrulis A, Eichenbaum H (2003) The perirhinal-entorhinal cortex, but not the hippocampus, is critical for expression of individual recognition in the context of the Coolidge effect. *Neuroscience*, 122, 599-607. <https://doi.org/10.1016/j.neuroscience.2003.08.009> (PMID: 14622903)

Petrulis A, Peng M**, Johnston RE (2000) The role of the hippocampal system in social odor recognition and scent marking by female golden hamsters (*Mesocricetus auratus*). *Behavioral Neuroscience*, 114, 184-195. <https://doi.org/10.1037/0735-7044.114.1.184> (PMID: 10718273)

Petrulis A, Peng M**, Johnston RE (1999) Effects of vomeronasal organ removal on individual odor discrimination, sex odor preference and scent marking by female golden hamsters (*Mesocricetus auratus*). *Physiology and Behavior*, 66, 73-83. [https://doi.org/10.1016/S0031-9384\(98\)00259-5](https://doi.org/10.1016/S0031-9384(98)00259-5) (PMID: 10222476)

Petrulis A, Johnston RE (1999) Lesions centered on the medial amygdala impair scent-marking and sex odor recognition but spare discrimination of individual odors in female golden hamsters (*Mesocricetus auratus*). *Behavioral Neuroscience*, 113, 345-357. <https://doi.org/10.1037/0735-7044.113.2.345> (PMID: 10357459)

Petrulis A, deSouza I**, Schiller M**, Johnston RE (1998) Role of frontal cortex in social odor discrimination and scent-marking in female golden hamsters (*Mesocricetus auratus*). *Behavioral Neuroscience*, 112, 199-212. <https://doi.org/10.1037/0735-7044.112.1.199> (PMID: 9517828)

Petrulis A, Johnston RE (1997) Causes of scent marking in female golden hamsters (*Mesocricetus auratus*): specific signals or classes of information? *Journal of Comparative Psychology*, 111(1), 25-36. <https://doi.org/10.1037/0735-7036.111.1.25> (PMID: 9090136)

Petrulis A, Johnston RE (1995) A re-evaluation of dimethyl disulfide as a sex attractant in golden hamsters. *Physiology and Behavior*, 57, 779-784. [https://doi.org/10.1016/0031-9384\(94\)00332-7](https://doi.org/10.1016/0031-9384(94)00332-7) (PMID: 7777617)

Book chapters and editorials

Petrulis A. (2020) Structure and function of the medial amygdala. In J. H. Urban & J. A. Rosenkranz (Eds.), *Handbook of Behavioral Neuroscience: Amygdala Structure and Function*, pp. 39-61. Oxford: Academic Press. <https://doi.org/10.1016/B978-0-12-815134-1.00002-7>.

Caldwell HK, **Petrulis A** (2018) Editorial: The Vasopressin System and Behavior. *Frontiers in Endocrinology (Lausanne)*, 9, 438, doi: 10.3389/fendo.2018.00438 (PMID: 30127764)

Petrulis A, Fiber J, Swann J (2017) The medial amygdala, hormones, pheromones, social behavior network, and mating behavior. In DW. Pfaff & M. Joëls (Eds.), *Hormones, Brain, and Behavior* (3rd ed.), pp. 329–343. Oxford: Academic Press. <https://doi.org/10.1016/B978-0-12-803592-4.00011-0>

Ferkin M, delBarco-Trillo J, **Petrulis A** (2017) Communication by chemical signals: physiological mechanisms, ontogeny and learning, function, evolution and cognition. In DW. Pfaff & M. Joëls (Eds.), *Hormones, Brain, and Behavior* (3rd ed.), pp. 285–327. Oxford: Academic Press. <https://doi.org/10.1016/b978-0-12-803592-4.00010-9>

Petrulis A (2015) Introduction to the special issue on chemosignals and reproduction. *Hormones and Behavior*, 68, 1-2, doi: 10.1016/j.yhbeh.2014.12.002 (PMID: 25497416)

Maras PM*, **Petrulis A** (2007) The role of early olfactory experience in the development of adult odor preferences in rodents. In J. Hurst, RJ. Beynon, SC. Roberts & T. Wyatt (Eds.), *Chemical Signals in Vertebrates 11*, pp. 251-260. New York: Springer.
https://link.springer.com/chapter/10.1007/978-0-387-73945-8_24

Been LE*, **Petrulis A** (2007) The neurobiology of sexual solicitation: vaginal marking in female Syrian hamsters (*Mesocricetus auratus*). In J. Hurst, RJ. Beynon, SC. Roberts & T. Wyatt (Eds.), *Chemical Signals in Vertebrates 11*, pp. 231-239. New York: Springer.
https://link.springer.com/chapter/10.1007/978-0-387-73945-8_22

Petrulis A (2005) The neurobiology of odor-based sexual preference: the case of the Golden hamster. In RT. Mason, MP. LeMaster & D. Muller-Schwarze (Eds.), *Chemical Signals in Vertebrates 10*, pp. 291-299. New York: Springer.
https://link.springer.com/chapter/10.1007/0-387-25160-X_32

Petrulis A, Eichenbaum H (2003) Olfactory memory. In RL. Doty (Ed.), *Handbook of Olfaction and Gustation: Second Edition*. pp. 409-438. New York: Marcel Dekker.
<https://www.taylorfrancis.com/books/e/9780429213649/chapters/10.1201/9780203911457-25>

Petrulis A, Peng M**, Johnston RE (1999) Lateral olfactory tract transections impair discrimination of individual odors, sex odor preferences and scent-marking in female golden hamsters (*Mesocricetus auratus*). In RE. Johnston, D. Muller-Schwarze & P. Sorensen (Eds.), *Advances in Chemical Communication in Vertebrates*, pp. 549-562. New York: Plenum Press. https://link.springer.com/chapter/10.1007/978-1-4615-4733-4_49

Petrulis A, Johnston RE (1995) Odor modulation of scent marking in female golden hamsters. In R. Apfelbach, D. Muller-Schwarze, K. Reutter & E. Weiler (Eds.), *Advances in Biosciences: Vol. 93. Chemical Signals in Vertebrates 7*, pp. 353-360. Oxford: Pergamon Press.

ACADEMIC AND PROFESSIONAL HONORS

1990 – 1991	Vice-President of Arizona State University chapter of Psi Chi (Psychology Honor Society)
1991 – 1992	Trainee on NIH Developmental Training Grant, Department of Psychology, Cornell University, Ithaca, NY
1999	National Science Foundation Travel Award to attend XXVI International Ethological Conference, Bangalore, India
2000	Health Emotions Research Institute Travel Award to attend Wisconsin Symposium on Emotion: The Neurobiology of Positive Emotion, Madison, WI, USA

PRESENTATIONS

(*graduate student presenter; **undergraduate presenter)

Invited talks

National – International

Petrulis A *The extended medial amygdala: a key regulator of social communication.* Presented at Department of Biological Sciences, Kent State University, April 26th, 2019.

Petrulis A *The neurobiology of sociosexual attraction.* Presented at Department of Biological Sciences, University of Memphis, November 29th, 2012.

Petrulis A *The extended medial amygdala and the regulation of social approach.* Presented at Department of Psychiatry, University of Pennsylvania School of Medicine, June 18th, 2010.

Petrulis A *Neural systems underlying odor-based social recognition: sexual and individual identity.* Presented at Biology Department Seminar, Bowdoin College, October 8th, 2003.

Petrulis A *Neural mechanisms of social odor recognition in golden hamsters.* Presented at the International Ethological Conference, Bangalore, India, August 3rd, 1999.

Local

Petrulis A *“Gee, your hair smells terrific” or the neurobiology of sex and individual recognition by odors.* Presented at GSU Neuroscience Symposium, Georgia State University, October 5th, 2002.

Petrulis A *The neural architecture of social recognition.* Presented at Psi Chi meeting, Georgia State University, November 5th, 2002.

Petrulis A *Discrimination of sexual and individual identity by odors: neural mechanisms.* Presented at the Neuroscience Graduate Seminar, Boston University, April 21st, 1999.

Conference posters

Rigney N*, Whylings J*, de Vries GJ, **Petrulis A** (2019) Hypothalamic vasopressin regulates social behavior in female mice. *Society for Neuroscience*, Chicago, IL.

Rigney N*, Beaumont R**, **Petrulis A** (2019) Injections of a V1aR antagonist into the dorsal raphe and lateral habenula alter communication in male mice. *Society for Behavioral Neuroendocrinology*, Bloomington, IN.

Rigney N*, Whylings J*, de Vries GJ, **Petrulis A** (2018) Specific vasopressin cell populations in the regulation of social communication. *Society for Behavioral Neuroendocrinology*, Toronto, Canada.

Whylings J*, Rigney N*, Peters N*, **Petrulis A**, de Vries GJ (2018) BNST Vasopressin Contributes to Expression of Sickness Behaviors in Male Mice. *Society for Behavioral Neuroendocrinology*, Toronto, Canada.

Krevitt L*, Nguyen D**, **Petrulis A** (2017) Effects of clozapine N-oxide on social communication in mice expressing inhibitory DREADDs in BNST-MPOA. *Society for Neuroscience*, Washington, DC.

Rigney N*, Whylings J*, de Vries GJ, **Petrulis A** (2017) Specific vasopressin cell populations in the regulation of social communication. *Society for Neuroscience*, Washington, DC.

Krevitt L*, Rigney N*, **Petrulis A** (2016) Adapting the weighted push-door assay for measurement of social motivation in mice. *Society for Behavioral Neuroendocrinology*, Montreal, Quebec, Canada.

Rigney N*, McDaniel K*, **Petrulis A** (2016) Social deficits in transgenic reporter mice. *Society for Behavioral Neuroendocrinology*, Montreal, Quebec, Canada.

Rigney N*, McDaniel K*, **Petrulis A** (2015) The role of GABA in the social neural network. *Society for Behavioral Neuroendocrinology*, Pacific Grove, CA.

Rigney N*, McDaniel K* **Petrulis A** (2015) Social deficits in a transgenic mouse model. *Society for Neuroscience*, Chicago, IL.

Levy MJ*, **Petrulis A** (2014) The role of dopamine in social processing and behavior *Society for Neuroscience*, Washington, DC.

Burns AR*, **Petrulis A** (2014) GABAergic and glutamatergic connections in the social neural network. *Society for Neuroscience*, Washington, DC.

Whylings J*, Burns AR*, Behnia P**, **Petrulis A**, Cooke BM (2014) Excitatory and inhibitory reciprocal connections between the anterodorsal and posterodorsal medial amygdala in the adult male Syrian hamster. *Society for Neuroscience*, Washington, DC.

Levy MJ*, **Petrulis A** (2013) Maintenance of odor preference: a function of social exposure or cue modality? *Society for Behavioral Neuroendocrinology*, Atlanta, GA.

Martinez LA*, **Petrulis A** (2013). Endogenous oxytocin preferentially facilitates male odor-induced cFos expression in the bed nucleus of the stria terminalis in female Syrian hamsters. *Society for Behavioral Neuroendocrinology*, Atlanta, GA.

Shukla D*, Martinez LA*, Burns AR*, **Petrulis A**, Cooke BM (2013) GABAergic and glutamatergic phenotype of bidirectional connections of the anterior and posterodorsal medial amygdala. *Society for Behavioral Neuroendocrinology*, Atlanta, GA.

Burns AR*, Shuckla D*, Martinez LA*, Cooke BM, **Petrulis A** (2013) Glutamatergic and GABAergic projections from the medial amygdala to the posterior bed nucleus of the stria terminalis. *Society for Neuroscience*, San Diego, CA.

Petrulis A, Helman A**, Tabbaa M**, Martinez LA* (2012) Blocking GABA_A receptors in the bed nucleus of the stria terminalis disrupts sexual odor preference in male Syrian hamsters. *Society for Neuroscience*, New Orleans, LA.

Martinez LA*, **Petrulis A** (2012) Neural activation within ventral forebrain areas following exposure to sexual odors in female Syrian hamsters: Colocalization with oxytocin. *Society for Neuroscience*, New Orleans, LA.

Martinez LA*, **Petrulis A** (2011) The role of the medial preoptic area in vaginal marking and opposite-sex odor preference in female Syrian hamsters. *Society for Neuroscience*, Washington, DC.

Been LE*, **Petrulis A** (2011) Functionally disconnecting the medial amygdala from the medial preoptic area eliminates copulation but not odor preference in male Syrian hamsters. *Society for Neuroscience*, Washington, DC.

Badura M*, **Petrulis A** (2011) Fos response to social odors varies with odor volatility in male Syrian hamsters. *Society for Neuroscience*, Washington, DC.

Been LE*, **Petrulis A** (2010) Reevaluating the role of the medial preoptic area in appetitive and consummatory aspects of reproductive behavior in male Syrian hamsters. *Society for Behavioral Neuroendocrinology*, Toronto, Canada.

Been LE*, **Petrulis A** (2010) Sexual odor-responsive cells in the medial amygdala and bed nucleus of the stria terminalis project to the medial preoptic area. *Society for Neuroscience*, San Diego, CA.

Martinez LA*, **Petrulis A** (2010) The role of the posterior bed nucleus of the stria terminalis in vaginal marking and sexual odor preference in female Syrian hamsters. *Society for Neuroscience*, San Diego, CA.

Been LE*, **Petrulis A** (2009) Lesions of the posterior bed nucleus of the stria terminalis eliminate opposite-sex odor preference in sexually-naïve, but not sexually experienced male Syrian hamsters. *Society for Behavioral Neuroendocrinology*, East Lansing MI.

Maras PM*, **Petrulis A** (2009) Excitotoxic lesions of the anterior medial amygdala reduce Fos expression within the posterodorsal medial amygdala in response to female or male odors. *Society for Behavioral Neuroendocrinology*, East Lansing MI.

Martinez LE*, **Petrulis A** (2009) Progesterone inhibits vaginal marking in ovariectomized, estradiol benzoate-primed female Syrian hamsters. *Society for Behavioral Neuroendocrinology*, East Lansing MI.

Been LE*, **Petrulis** A (2009) The role of the medial preoptic area in opposite-sex odor preference in male Syrian hamsters. *Society for Neuroscience*, Chicago, IL.

Maras PM*, **Petrulis** A (2009) Lesions that disconnect the anterior and posterodorsal regions of the medial amygdala eliminate opposite-sex odor preferences in male Syrian hamsters. *Society for Neuroscience*, Chicago, IL.

Been LE*, **Petrulis** A (2008) The role of the posterior bed nucleus of the stria terminalis on sexual odor preference in male Syrian hamsters. *Society for Behavioral Neuroendocrinology*, Groningen, The Netherlands.

Lewis CM, **Petrulis** A (2008) Neural encoding of social and non-social odors in the medial amygdala of male Syrian hamsters. *Society for Behavioral Neuroendocrinology*, Groningen, The Netherlands.

Maras PM*, **Petrulis** A (2008) Functional interactions between sub-regions of the medial amygdala during the processing of sexual odors in male Syrian hamsters. *Society for Behavioral Neuroendocrinology*, Groningen, The Netherlands.

Martinez LA*, **Petrulis** A, Albers HE (2008) Oxytocin in the medial preoptic area/anterior hypothalamus regulates vaginal marking in female Syrian hamsters. *Society for Behavioral Neuroendocrinology*, Groningen, The Netherlands.

Been LE*, **Petrulis** A (2008) The role of the posterior bed nucleus of the stria terminalis in opposite-sex odor preference and social odor processing in male Syrian hamsters. *Society for Neuroscience*, Washington, DC.

Lewis CM, **Petrulis** A (2008) Neural encoding of male and female odors in the medial amygdala of male Syrian hamsters. *Society for Neuroscience*, Washington DC.

Maras PM*, **Petrulis** A (2008) Social odor processing within sub-regions of the medial amygdala: functional interactions and chemical phenotype. *Society for Neuroscience*, Washington, DC.

Been LE*, Murphy AZ, Clancy A, **Petrulis** A (2007) Estrogen receptor alpha co-localizes with central nervous system neurons projecting to the vagina in Syrian hamsters: implications for the neural control of vaginal marking. *Society for Behavioral Neuroendocrinology*, Pacific Grove, CA.

Maras PM*, **Petrulis** A (2007) The role of the posteromedial cortical amygdala in generating sexual odor preference and copulatory behavior in male Syrian hamsters. *Society for Behavioral Neuroendocrinology*, Pacific Grove, CA.

Hanberry R**, Murphy AZ, **Petrulis** A (2007) NK1 Receptor distribution in the limbic system of the golden hamster (*Mesocricetus auratus*). *Society for Neuroscience*, San Diego, CA.

Maras PM*, **Petrulis A** (2007) Inhibitory neurons within the medial amygdala respond to same sex odors in male Syrian hamsters. *Society for Neuroscience*, San Diego, CA.

Ross HE*, **Petrulis A**, Murphy AZ, Young LJ (2007) Mapping olfactory circuitry in prairie voles using a transneuronal viral tracer. *Society for Neuroscience*, San Diego, CA.

Eidson L**, Epperson E**, **Petrulis A** (2006) Preference for male odors across the estrous cycle in female Golden hamsters. *Society for Behavioral Neuroendocrinology*, Pittsburgh, PA.

Karom M, **Petrulis A**, Albers HE (2006) Aggression and flank marking in wild-type Golden hamsters. *Society for Behavioral Neuroendocrinology*, Pittsburgh, PA.

Maras PM*, **Petrulis A** (2006) Chemosensory experience and opposite-sex odor preferences in female hamsters. *Society for Behavioral Neuroendocrinology*, Pittsburgh, PA.

Smith V**, Maras PM*, **Petrulis A** (2006) Sexual experience maintains opposite-sex odor preference in male hamsters. *Society for Behavioral Neuroendocrinology*, Pittsburgh, PA.

Been LE*, **Petrulis A** (2006) The neuroanatomy of sexual solicitation: vaginal marking in female Golden hamsters. *Chemical Signals in Vertebrates XI*, Chester, UK.

Maras PM*, **Petrulis A** (2006) The role of early chemosensory experience in the expression of odor preference and vaginal marking in female Syrian hamsters. *Chemical Signals in Vertebrates XI*, Chester, UK.

Been LE*, Murphy AZ, **Petrulis A** (2006) The neuroanatomy of sexual solicitation: vaginal marking in female Golden hamsters. *Society for Neuroscience*, Atlanta, GA.

Maras PM*, **Petrulis A** (2006) The role of the posteromedial cortical nucleus of the amygdala in regulating opposite-sex odor preference and copulatory behavior in male Syrian hamsters. *Society for Neuroscience*, Atlanta, GA.

Maras PM, **Petrulis A** (2005) The posterodorsal region of the medial amygdala regulates sex-specific odor preference and attraction in male hamsters. *Society for Behavioral Neuroendocrinology*, Austin, TX.

Paisley JC*, Huddleston GG*, Denman HN, Carruth LL, Grober MS, **Petrulis A**, Clancy, AN (2005). Different mechanisms of estrogen action in the brain: inhibition of estrogen receptor synthesis in the medial preoptic area, but not the medial amygdala, reduces male rat mating behavior. *Society for Behavioral Neuroendocrinology*, Austin, TX.

Maras PM*, **Petrulis A** (2005) Parallel processing of chemosensory and steroidal cues in the medial amygdala regulates opposite-sex odor preferences and attraction in male Syrian hamsters (*Mesocricetus auratus*). *Society for Neuroscience*, Washington DC.

Petrulis A, Alvarez P, Eichenbaum H (2003) Neural correlates of social odor recognition in the parahippocampal region of the golden hamster. *Chemical Signals in Vertebrates X*, Corvallis, OR.

Petrulis A, Alvarez P, Eichenbaum H (2001) Neural correlates of social odor recognition in the parahippocampal region of the golden hamster. *Society for Neuroscience*, San Diego, CA.

Petrulis A, Eichenbaum H (2000) The hippocampal system, individual odor discrimination and the Coolidge effect in golden hamsters (*Mesocricetus auratus*). *Chemical Signals in Vertebrates IX*, Krakow, Poland.

Petrulis A, Eichenbaum H (2000) The hippocampal system, individual odor discrimination and the Coolidge effect in golden hamsters (*Mesocricetus auratus*). *Society for Neuroscience*, New Orleans, LA.

Petrulis A, Peng M, Johnston RE (1998)** The role of the hippocampal system in social odor recognition in female golden hamsters. *Society for Neuroscience*, Los Angeles, CA.

Petrulis A, Peng M, Johnston RE (1997)** The role of the vomeronasal system in hamster social recognition. *Chemical Signals in Vertebrates VIII*, Ithaca, NY.

Petrulis A, deSouza I, Schiller M**, Johnston RE (1996)** Orbital cortex damage does not impair individual odor discrimination in golden hamsters. *The Integrative Neurobiology of Affiliation*, Washington, DC.

Petrulis A, Peng M, Schiller M**, Johnston RE (1996)** The role of the cortico-medial amygdala in hamster social odor recognition. *Society for Neuroscience*, Washington, DC.

Petrulis A, deSouza I, Johnston RE (1995)** Orbital cortex damage does not impair individual odor discrimination in golden hamsters. *Society for Neuroscience*, San Diego, CA.

Petrulis A, Johnston RE (1994) Is dimethyl disulphide (DMDS) a sex pheromone in golden hamsters? *Association for Chemoreception Sciences*, Sarasota, FL.

Petrulis A, Johnston RE (1994) Odor modulation of scent marking in female golden hamsters. *Chemical Signals in Vertebrates VII*, Tubingen, Germany.

Petrulis A, Johnston RE (1993) Odor modulation of scent marking. *Conference on Reproductive Behavior*, East Lansing, MI.

TEACHING AND MENTORING

Courses Taught (Primary Instructor; required courses in italics; *designed)

Department of Psychology and Neuroscience Institute, Georgia State University:

*Neuroscience of Motivation and Emotion, 2017 – present (online: Fall 2020)

Neuroscience II: Integrative Neuroscience, 2015 – 2016

*Topics in Neuroscience: Biology of Sexual Orientation, 2012 – 2015

Introduction to Human Sexuality, 2010 – 2014

*Drugs and the Nervous System, 2009 – present

*Graduate Seminar – Neurobiology of Sexual Behavior, 2008

**Graduate Advanced Behavioral Neuroscience/Topics in Neuroscience: Neural Mechanisms of Behavior, 2007 – 2017*

*Graduate Seminar – Animal Communication, 2005

Psychology of Animal Behavior, 2004 – 2011

Physiological Psychology, 2002 – 2007

Introduction to Drugs and Behavior, 2002 – 2008

Department of Brain and Cognitive Sciences, Massachusetts Institute of Technology

Animal Behavior, 1999

Department of Psychology, Cornell University

Introduction to Biopsychology, 1996

Trainees Mentored (as principal investigator)

Post-doctoral fellows

Christine Lewis, PhD (2006 – 2009)

Pedro Jimenez, PhD (2006 – 2009); co-mentor: Dr. Laura Carruth

Graduate students

Doctoral

Chair

Alexandra Selke (2020 – present)

Nicole Rigney (2017 – present)

Jack Whylings (co-mentor; 2013 – present)

Luis Martinez (2013); Assistant Professor, Neuroscience, Trinity College, Hartford, CT

Laura Been (2011); Assistant Professor, Psychology, Haverford College, Haverford, PA

Pamela Maras (2010); Research Scientist, Neuroscience, U Michigan, Ann Arbor, MI

Committee member

Chloe West (2020 – present)

Laura Cortes (2019 – present)

Fernanda Duque-Mendoza (2018 – present)

Joseph Normandin (2007 – 2010), Biology

Heather Ross, Neuroscience, Emory University (2004 – 2009)

Alicia Farruzi, Psychology (2003 – 2005)

Masters

Chair

Behnoush Dadkhah (2020 – present), Neuroscience
Timothy Copeland (2020 – present), Neuroscience
Brian Reid (2020 – present), Neuroscience
Michael Hohl (2019 – 2020), Neuroscience
 Research Technician, Emory School of Medicine
Marisa Levy (2014 – 2016), Neuroscience
Kelly McDaniel Poth (2014 – 2015), Neuroscience
 Research Coordinator, Emory School of Medicine
Marc Badura (2009 – 2011), Neuroscience
Samantha Bowden (2014 – 2019), Biology
 PhD program in Psychology, Michigan State University
Ashleigh Burns Irwin (2012 – 2014), Biology
 MD/PhD program, University of Alabama
Elizabeth Weaver (2008 – 2009)
 Brains & Behavior Program Director (GSU)

Committee member

Gretchen Clymer (2005), Anthropology
Stacie Lin (2004 – 2005), Psychology

Undergraduate and post-baccalaureate students

Honors theses

Samantha Bowden (2014)
Manal Tabbaa (2013); PhD, Florida State University, 2019
Johnny Garretson (2009); PhD, Georgia State University, 2016

Presidential Scholars

Stephanie Ekey (2014 – 2018), Meira Robbins (2017 – 2018)

University Scholars/Honors students

Larry Burrell (2003 – 2005), DeMarcus McCarthy (2004), Taylor Vaughn (2004 – 2005),
Johnny Garretson (2008 – 2009), Dennis Vanloozen (2008), Ally Bogle (2009), Amelia
Davies (2009 – 2010), Preethy Kuriakose (2009), Alix Pijeaux (2010 – 2014), Stephanie
Sylvester (2010), Manal Tabbaa (2012 – 2013), July Tran (2013), Samantha Bowden
(2013 – 2014), Megan Moore (2013 – 2014), Dorena Nguyen (2017 – 2018), Rachael
Beaumont (2017 – 2019), Lamiyah Mussaji (2019), Jade Christman (2019 – present),
Selma Belkasim (2020 – present)

Research assistants

Robert Barker (2003), Tamra Pratt (2003 – 2004), Rebecca Flack (2003 – 2004), Jeff
Choens (2004), Kimberly Evans (2004), Don Bearden (2004 – 2005), Nancy Anne
Prianti (2004 – 2005), Lissette Valdes (2004 – 2005), Laurie Hale (2004 – 2006),
Victoria Smith (2004 – 2006), Lori Eidson (2005 – 2006), Sonia Aguirre (2006 – 2007),
Denise Tevis (2006), Rachel Atkinson (2008), Spencer Gobbel (2008 – 2010), Ashleigh
Hover (2008), Preethy Kuriakose (2008), Anaam Mohammed (2008 – 2009), Isaiah Oh
(2008), Shelease Johnson (2009 – 2010), Nina King (2009 – 2010), Jectoria Irving
(2010), Alicia Helman (2012), Emily Mobley (2012), Jamin Peters (2012), Alex

Alderman (2012), July Tran (2012), Amar Aburas (2013 – 2014), Bianca Cotto (2013 – 2014), Diana Song (2013), Asma Javed (2013), Omar Hamki (2013 – 2015), Yolanda Onwubere (2013 – 2014), Michael Bailey (2013 – 2014), Nicole Rigney (2013 – 2015), Hala Elahi (2013 – 2014), Amber Grant (2014 – 2015), Stephanie Lahey (2014 – 2015), Mercedes Hodges (2014 – 2015), Vivian Persons (2017 – 2018), Nikita Gupta (2017), Darryl Burnet (2017 – 2018), Brandon Ailion (2018), Carol Wilbur (2018), Coraima Ramos (2018), Michael Hohl (2018 – 2019), Andrew Annello (2019 – 2020), Maria Olifer (NYU; 2020)

BRAIN and Brains and Behavior Scholars (Center for Behavioral Neuroscience and Brains and Behavior summer programs)

Larry Burrell (2004), Erin Epperson (2005), Valencia Coston (2006), Anthony Chen (2007), Dennis Vanloozen (2008), Spencer Gobbel (2009), Anaam Mohammed (2009), Mercedes Hodges (2015), Meira Robbins (2017), Jade Christman (2020)

Institute on Neuroscience (ION; summer program for high school students)

Nneka Arinze (2004), Maria Olifer (2018)

NET/Work scholar

Laura Segura (Agnes Scott College; 2013 – 2014)

ACADEMIC SERVICE

External

2020 Reviewer; National Institute of Health, National Research Service Award (F02A) panel

2018 Co-editor for special issue in Frontiers in Endocrinology (journal): The Vasopressin System and Behavior

2018 Reviewer; Israeli Science Foundation

2017 Reviewer; National Science Foundation, Animal Behavior

2017 Reviewer; National Institute of Health, National Research Service Award (F02A) panel

2016 Reviewer; National Institute of Health, Special Emphasis panel (ZMH1 ERB-S)

2016 Reviewer; Israeli Science Foundation

2016 Reviewer; National Institute of Health, National Research Service Award (F02A) panel

2016 Reviewer; National Science Foundation, Animal Behavior

2015 Guest editor for special issue of Hormones and Behavior (journal): Chemosignals and Reproduction

2015 Reviewer; National Institute of Health, National Research Service Award (F02A) panel

2015 Reviewer; National Science Foundation, Animal Behavior

2014 Reviewer; National Institute of Health, National Research Service Award (F02A) panel

2013 Panel member; Success in Academia, Society for Neuroscience meeting

2011 Reviewer; National Science Foundation, IOS
2009 Reviewer; National Institute of Health, Special Emphasis panel
2009 Reviewer; National Science Foundation, IOS
2009 Reviewer; National Institute of Health, National Research Service Award (F02A) panel
1999 Reviewer; Israeli Science Foundation

Internal (GSU)

2020 – present Vice-chair of Institutional Animal Care and Use Committee
2010 – 2016 University Grant and Dissertation Program, reviewer
2006 – 2008 Neuroscience Institute Proposal Committee, member
2006 – 2007 Graduate Program Committee (Psychology), member
2005 – 2006 Executive Committee (Psychology), member
2005 – present Institutional Animal Care and Use Committee, member
2003 – 2007 Undergraduate Program Committee (Psychology), member

Ad hoc journal review

Animal Behaviour, Behavioral Neuroscience, Behavioural Brain Research, Behavioural Processes, Brain Research, Brain Structure and Function, Chemical Senses, Developmental Psychobiology, eLife, Endocrinology, eNeuro, European Journal of Neuroscience, Frontiers in Neural Circuits, Frontiers in Neuroanatomy, Frontiers in Neuroendocrinology, Frontiers in Neuroscience: Neuroendocrine Science, Frontiers in Zoology, Genes, Brains and Behavior, Hormones and Behavior, Hippocampus, Integrative Zoology, Journal of Clinical Investigation, Journal of Comparative Neurology, Journal of Neuroendocrinology, Journal of Neurophysiology, Journal of Neuroscience, Journal of Sexual Medicine, Molecular Psychiatry, Neuroscience, Neuroscience Letters, Molecular Reproduction and Development, Pharmacology, Biochemistry & Behavior, Physiology and Behavior, Public Library of Science – Biology, Public Library of Science – One, Scientific Reports, Zoology.

PROFESSIONAL AFFILIATIONS

Society for Behavioral Neuroendocrinology (SBN)
Member, Professional Development Committee (2013-2016)
Society for Neuroscience (SfN)
Panelist, Workshop on Success in Academia (2013)
Councilor, Atlanta Chapter of SfN (2006 – 2007)
Society for Social Neuroscience (SSN)
Organization for the Study of Sex Differences (OSSD)
International Behavioral Neuroscience Society (IBNS)