

## CURRICULUM VITAE

### Alexa H. Veenema, PhD

Associate Professor in Behavioral Neuroscience  
Director of the Neurobiology of Social Behavior Laboratory  
Department of Psychology  
Michigan State University  
East Lansing, MI  
[aveenema@msu.edu](mailto:aveenema@msu.edu)

Lab website:

<https://veenemalab.psy.msu.edu>

MSU Psychology Department:

<https://psychology.msu.edu/people/faculty/aveenema>

MSU Neuroscience Program:

<https://neuroscience.natsci.msu.edu/about-us/directory/faculty/alexa-h-veenema-phd/>

---

## RESEARCH INTERESTS

Social behavior, vasopressin, oxytocin, opioids, orexins, social behavior neural network, lateral septum, bed nucleus of the stria terminalis, ventral tegmental area, nucleus accumbens, ventral pallidum, juveniles, sex differences, age differences, early life stress

---

## EMPLOYMENT/EDUCATION

- |                                  |   |
|----------------------------------|---|
| 2017-present                     | <b>Associate Professor</b> in Behavioral Neuroscience<br>Department of Psychology & Neuroscience Program<br>Michigan State University, East Lansing, MI   |
| 2016-2017                        | <b>Associate Professor</b> in Behavioral Neuroscience<br>Department of Psychology, Boston College, Chestnut Hill, MA  |
| 2010-2016                        | <b>Assistant Professor</b> in Behavioral Neuroscience<br>Department of Psychology, Boston College, Chestnut Hill, MA  |
| 2009-2010                        | <b>Post-doctoral researcher</b> , advisor Dr. Geert J. de Vries<br>Department of Psychology & Center for Neuroendocrine Studies<br>University of Massachusetts, Amherst, MA   |
| 2003-2009                        | <b>Post-doctoral researcher</b> , advisor Dr. Inga D. Neumann<br>Department of Behavioural Neuroendocrinology, University of Regensburg, Germany  |
| 2003<br>-June 23 <sup>rd</sup> - | <b>Ph.D. in Neuroscience</b> , advisors Dr. E. Ronald de Kloet and Dr. Jaap M. Koolhaas<br>Department of Animal Physiology, University of Groningen, the Netherlands<br>Thesis (ISBN 90-9017020-0): 'Coping style and stressor susceptibility: neuroendocrine and neurobiological studies with genetically selected mouse lines'<br><a href="http://www.rug.nl/research/portal/files/43758862/thesis.pdf">http://www.rug.nl/research/portal/files/43758862/thesis.pdf</a> |
| 1997                             | <b>M.Sc. in Biology</b> , area of expertise: Neuroscience<br>University of Groningen, the Netherlands   |
-

## PEER-REVIEWED PUBLICATIONS

(N = 63, Google Scholar Citations = 5481, H-index = 38, I10-index = 53)

<https://scholar.google.com/citations?user=fYcP6ykAAAAJ&hl=en>

Member of Dr. Veenema's lab: **1**=undergraduate student, **2**=graduate student, **3**=postdoc

- 2020 Reppucci CJ<sup>3</sup>, Gergely CK<sup>1</sup>, Bredewold R, Veenema AH. Involvement of orexin/hypocretin in the expression of social play behaviour in juvenile rats. *International Journal of Play*, 9 Feb.
- DiBenedictis BT<sup>3</sup>, Cheung HK<sup>1</sup>, Nussbaum ER<sup>1</sup>, Veenema AH. Involvement of ventral pallidal vasopressin in the sex-specific regulation of sociosexual motivation in rats. *Psychoneuroendocrinology*, 111:104462. **Cited by 1**
- 2019 Hodges TE, Eltahir AM, Patel S, Bredewold R, Veenema AH, McCormick CM. Effects of oxytocin receptor antagonism on social function and corticosterone release after adolescent social instability in male rats. *Horm Behav*, 116:104579.
- Worley NB<sup>2</sup>, Dumais KM<sup>2</sup>, Yuan JC<sup>1</sup>, Newman LE<sup>1</sup>, Alonso AG<sup>1</sup>, Gillespie TC<sup>1</sup>, Hobbs NJ, Breedlove SM, Jordan CL, Bredewold R, Veenema AH. Oestrogen and androgen receptor activation contribute to the masculinisation of oxytocin receptors in the bed nucleus of the stria terminalis of rats. *J Neuroendocrinol*, 31:e12760. **Cited by 1**
- Smith CJW<sup>2</sup>, DiBenedictis BT<sup>3</sup>, Veenema AH. Comparing vasopressin and oxytocin fiber and receptor density patterns in the social behavior neural network: Implications for cross-system signaling. *Front Neuroendocrinol*, 53:100737. **Cited by 2**
- 2018 Bredewold R, Nascimento NF, Ro GS<sup>1</sup>, Cieslewski SE<sup>1</sup>, Reppucci CJ<sup>3</sup>, Veenema AH. Involvement of dopamine, but not norepinephrine, in the sex-specific regulation of juvenile socially rewarding behavior by vasopressin. *Neuropsychopharmacology*, 43:2109-2117. **Cited by 7**
- Bredewold R, Veenema AH. Sex differences in the regulation of social and anxiety-related behaviors: Insights from vasopressin and oxytocin brain systems. *Curr Opin Neurobiol*, 49:132-140. **Cited by 22**
- Reppucci CJ<sup>3</sup>, Gergely CK<sup>1</sup>, Veenema AH. Activation patterns of vasopressinergic and oxytocinergic brain regions following social play exposure in juvenile male and female rats. *J Neuroendocrinol*, 30:e12582: 1-12. **Cited by 5**
- Smith CJW<sup>2</sup>, Wilkins KB<sup>1</sup>, Li S<sup>1</sup>, Tulimieri M<sup>1</sup>, Veenema AH. Nucleus accumbens mu opioid receptors regulate context-specific social preferences in the juvenile rat. *Psychoneuroendocrinology*, 89: 59-68. **Cited by 6**
- Smith CJW<sup>2</sup>, Ratnaseelan AM<sup>1</sup>, Veenema AH. Robust age, but limited sex, differences in mu-opioid receptors in the rat brain: Relevance for reward and drug seeking behaviors in juveniles. *Brain Struct Funct*, 223:475-488. **Cited by 7**
- 2017 Raam T, McAvoy KM, Besnard A, Veenema A, Sahay A. Hippocampal oxytocin receptors are necessary for discrimination of social stimuli. *Nat Commun*. 2017 Dec 8;8(1):2001. **Cited by 53**
- Hodges TE, Baumbach JL, Marcolin ML, Bredewold R, Veenema AH, McCormick CM. Social instability stress in adolescent male rats reduces social interaction and social recognition performance and increases oxytocin receptor binding. *Neuroscience*, 359:172-182. **Cited by 19**
- Smith CJW<sup>2</sup>, Mogavero JN<sup>1</sup>, Tulimieri MT<sup>1</sup>, Veenema AH. Involvement of the oxytocin system in the nucleus accumbens in the regulation of juvenile social novelty-seeking behavior. *Horm Behav*, 93:94-98. **Cited by 16**

- Dumais KM<sup>2</sup>, Kulkarni PP, Ferris CF, Veenema AH. Sex differences in neural activation following different routes of oxytocin administration in awake adult rats. *Psychoneuroendocrinology*, 81:52-62. **Cited by 15**
- DiBenedictis BT<sup>3</sup>, Nussbaum M<sup>1</sup>, Cheung HK<sup>1</sup>, Veenema AH. Quantitative mapping reveals age and sex differences in vasopressin, but not oxytocin, immunoreactivity in the rat social behavior neural network. *J Comp Neurol*, 525:2549-2570. **Cited by 28**
- Varian BJ, Poutahidis T, DiBenedictis BT<sup>3</sup>, Levkovich T, Ibrahim Y, Didyk E, Shikhman L, Cheung HK<sup>1</sup>, Hardas A, Ricciardi CE, Kolandaivelu K, Veenema AH, Alm EJ, Erdman SE. Microbial lysate upregulates host oxytocin. *Brain Behav Immun*, 61:36-49. **Cited by 30**
- Smith CJW<sup>2</sup>, Poehlmann M, Li S<sup>1</sup>, Bredewold R, Veenema AH. Age and sex differences in oxytocin and vasopressin V1a receptors in the rat brain: focus on the social-decision making network. *Brain Struct Funct*, 222:981-1006. **Cited by 68**
- 2016 Dumais KM<sup>2</sup>, Alonso AG<sup>1</sup>, Bredewold R, Veenema AH. Role of the oxytocin system in amygdala subregions in the regulation of social interest in male and female rats. *Neuroscience*, 330:138-149. **Cited by 25**
- Dumais KM<sup>2</sup>, Veenema AH. Presence and absence of sex differences in structure and function of the brain oxytocin system: Implications for understanding social behavior. In: *Sex Differences in the Central Nervous System*, Academic Press, R. Shansky & J. Johnson (Eds), p. 247-295. **Cited by 6**
- Dumais KM<sup>2</sup>, Alonso AG<sup>1</sup>, Immormino MA<sup>1</sup>, Bredewold R, Veenema AH. Involvement of the oxytocin system in the bed nucleus of the stria terminalis in the sex-specific regulation of social recognition. *Psychoneuroendocrinology*, 64:79-88. **Cited by 47**
- Dumais KM<sup>2</sup>, Veenema AH. Vasopressin and oxytocin receptor systems in the brain: sex differences and sex-specific regulation of social behavior. *Front Neuroendocrinol*, 40:1-23. **Cited by 217**
- 2015 Ferris CF, Yee J, Kenkel W, Dumais KM<sup>2</sup>, Moore K, Veenema AH, Kulkarni P, Perkybile A, Carter CS. Distinct BOLD activation profiles following central and peripheral oxytocin administration in awake rats. *Frontiers in Behavioral Neuroscience*, Sept 17;9:245. **Cited by 34**
- Bredewold R, Schiavo JK<sup>1</sup>, Van der Hart M, Verreij M<sup>1</sup>, Veenema AH. Dynamic changes in extracellular release of GABA and glutamate in the lateral septum during social play behavior in juvenile rats: Implications for sex-specific regulation of social play behavior. *Neuroscience*, 307:117-127. **Cited by 28**
- Smith CJW<sup>2</sup>, Wilkins KB<sup>1</sup>, Mogavero JN<sup>1</sup>, Veenema AH. Social novelty investigation in the juvenile rat: Modulation by the opioid system. *J Neuroendocrinol*, 27:752-764. **Cited by 24**
- 2014 Bredewold R, Smith CJ<sup>2</sup>, Dumais KM<sup>2</sup>, Veenema AH. Sex-specific modulation of juvenile social play behavior by vasopressin and oxytocin depends on social context. *Front Behav Neurosci*, June 16;8:216. **Cited by 85**
- 2013 Dumais KM<sup>2</sup>, Mayer TE<sup>1</sup>, Bredewold R, Veenema AH. Sex differences in oxytocin receptor binding in forebrain regions: correlations with social interest in brain region- and sex- specific ways. *Horm Behav*, 64:693-701. **Cited by 114**
- Veenema AH, Bredewold R, De Vries GJ. Sex-specific modulation of juvenile social play by vasopressin. *Psychoneuroendocrinology*, 38:2554-2561. **Cited by 84**
- Lukas M, Toth I, Veenema AH, Neumann ID. Oxytocin mediates rodent social memory within the lateral septum and the medial amygdala depending on the relevance of the social stimulus: Male juvenile versus female adult conspecifics. *Psychoneuroendocrinology* 38:916-26. **Cited by 117**

- 2012 Taylor PV, [Veenema AH](#), Paul MJ, Bredewold R, Isaacs S, de Vries GJ. Sexually dimorphic effects of a prenatal immune challenge on social play and vasopressin expression in juvenile rats. *Biol Sex Differ* Jun 14;3(1):15. **Cited by 60**
- Beiderbeck DI, Reber SO, Havasi A, Bredewold R, [Veenema AH](#), Neumann ID. High and abnormal forms of aggression in rats with extremes in trait anxiety – Involvement of the dopamine system in the nucleus accumbens. *Psychoneuroendocrinology* 37: 1969-80. **Cited by 85**
- De Vries GJ, [Veenema AH](#), Brown CH. Vasopressin and oxytocin: keys to understanding the neural control of physiology and behaviour. *J Neuroendocrinol* 24:527. **Cited by 8**
- [Veenema AH](#). Toward understanding how early-life social experiences alter oxytocin- and vasopressin-regulated social behaviors. *Horm Behav* 61:304-312. **Cited by 132**
- [Veenema AH](#), Bredewold R, De Vries GJ. Vasopressin regulates social recognition in juvenile and adult rats of both sexes, but in sex- and age-specific ways. *Horm Behav* 61:50-6. **Cited by 78**
- 2011 Lukas M, Toth I, Reber SO, Slattery DA, [Veenema AH](#), Neumann ID. The neuropeptide oxytocin facilitates pro-social behavior and prevents social avoidance in rats and mice. *Neuropsychopharmacology*, 36:2159-68. **Cited by 279**
- Lukas M, Bredewold R, Landgraf R, Neumann ID, [Veenema AH](#). Early life stress impairs social recognition due to a blunted response of vasopressin release within the septum of adult male rats. *Psychoneuroendocrinology*, 36:843-53. **Cited by 90**
- 2010 [Veenema AH](#), Beiderbeck DI, Lukas M, Neumann ID. Distinct correlations of vasopressin release within the lateral septum and the bed nucleus of the stria terminalis with the display of intermale aggression. *Horm Behav*, 58:273-281. **Cited by 127**
- Neumann ID, [Veenema AH](#), Beiderbeck DI. Aggression and anxiety: social context and neurobiological links. *Front Behav Neurosci*, Mar 30:4-12. Review. **Cited by 197**
- Lukas M, Bredewold R, Neumann ID, [Veenema AH](#). Maternal separation interferes with developmental changes in brain vasopressin and oxytocin receptor binding in male rats. *Neuropharmacology*, 58:78-87. **Cited by 143**
- 2009 [Veenema AH](#). Early life stress, the development of aggression and neurobiological correlates: What can we learn from animal models? *Front Neuroendocrinol*, 30:497–518. Review. **Cited by 241**
- [Veenema AH](#), Neumann ID. Maternal separation enhances offensive play-fighting in juvenile male rats. *Psychoneuroendocrinology*, 23:463-467. **Cited by 152**
- 2008 [Veenema AH](#), Neumann ID. Central vasopressin and oxytocin release: regulation of complex social behaviours. *Prog Brain Res*, 170:261-276. Review. **Cited by 270**
- [Veenema AH](#), Reber SO, Selch S, Obermeier F, Neumann ID. Early life stress enhances the vulnerability to chronic psychosocial stress and experimental colitis in adult mice. *Endocrinology*, 149:2727-2736. **Cited by 118**
- Reber SO, Obermeier F, Straub HR, [Veenema AH](#), Neumann ID. Aggravation of DSS-induced colitis after chronic subordinate colony (CSC) housing is partially mediated by adrenal mechanisms. *Stress*, 11:225-234. **Cited by 59**
- 2007 Beiderbeck DI, Neumann ID, [Veenema AH](#). Differences in intermale aggression are accompanied by opposite vasopressin release patterns within the septum in rats bred for high and low anxiety. *Eur J Neurosci*, 26:3597-3605. **Cited by 122**

- Veenema AH, Neumann ID. Neurobiological mechanisms of aggression and stress coping: a comparative study in mouse and rat selection lines. *Brain Behav Evol*, 70:274-285. Review. **Cited by 153**
- Veenema AH, de Kloet ER, de Wilde MC, Roelofs AJ, Kawata M, Buwalda B, Neumann ID, Koolhaas JM, Lucassen PJ. Differential effects of stress on adult hippocampal cell proliferation in low and high aggressive mice. *J Neuroendocrinol*, 19:489-498. **Cited by 29**
- Veenema AH, Bredewold R, Neumann ID. Opposite effects of maternal separation on intermale and maternal aggression in C57Bl/6 mice: link to hypothalamic vasopressin and oxytocin immunoreactivity. *Psychoneuroendocrinology*, 32:437-50. **Cited by 190**
- Reber SO, Birkeneder L, Veenema AH, Obermeier F, Falk W, Straub RH, Neumann ID. Adrenal insufficiency and colonic inflammation following a novel chronic psycho-social stress paradigm in mice: implications and mechanisms. *Endocrinology*, 148:670-82. **Cited by 175**
- Veenema AH, Torner L, Blume A, Beiderbeck DI, Neumann ID. Low inborn anxiety correlates with high intermale aggression: Link to ACTH response and neuronal activation of the hypothalamic paraventricular nucleus. *Horm Behav*, 51:11-19. **Cited by 101**
- 2006 Veenema AH, Blume A, Niederle D, Buwalda B, Neumann ID. Effects of early life stress on adult male aggression and hypothalamic vasopressin and serotonin. *Eur J Neurosci*, 24:1711-20. **Cited by 254**
- Feldker DE, Morsink MC, Veenema AH, Datson NA, Proutski V, Lathouwers D, de Kloet ER, Vreugdenhil E. The effect of chronic exposure to highly aggressive mice on hippocampal gene expression of non-aggressive subordinates. *Brain Res*, 1089:10-20. **Cited by 32**
- Neumann ID, Torner L, Toschi N, Veenema AH. Oxytocin actions within the supraoptic and paraventricular nuclei: differential effects on peripheral and intranuclear vasopressin release. *Am J Physiol Regul Integr Comp Physiol*, 291:R29-36. **Cited by 41**
- 2005 Veenema AH, Sijtsma B, Koolhaas JM, De Kloet ER. The stress response to sensory contact in mice: genotype effect of the stimulus animal. *Psychoneuroendocrinology*, 30:550-557. **Cited by 38**
- Veenema AH, Cremers TIFH, Jongasma M, Steenbergen P, De Boer SF, De Kloet ER, Koolhaas JM. Differences in the effects of 5-HT<sub>1a</sub> receptor agonists on forced swimming behavior and 5-HT metabolism between low and high aggressive mice. *Psychopharmacology*, 178:151-160. **Cited by 62**
- Buwalda B, Kole MHP, Veenema AH, Huininga M, De Boer SF, Korte SM, Koolhaas JM. Long-term effects of social stress on brain and behavior: a focus on hippocampal functioning. *Neurosci Biobehav Rev*, 29:83-97. Review. **Cited by 306**
- 2004 Veenema AH, Koolhaas JM, De Kloet ER. Basal and stress-induced differences in HPA axis, 5-HT responsiveness and hippocampal cell proliferation in two mouse lines. *Ann N Y Acad Sci*, 1018: 255-265. Review. **Cited by 96**
- 2003 Feldker DEM, Datson NA, Veenema AH, Proutski V, Lathouwers D, De Kloet ER, Vreugdenhil E. GeneChip analysis of hippocampal gene expression profiles of short- and long-attack-latency mice: technical and biological implications. *J Neuroscience Res*, 74:701-716. **Cited by 31**
- Sluyter F, Arseneault L, Moffitt TE, Veenema AH, de Boer SF, Koolhaas JM. Towards an animal model for antisocial behavior: parallels between mice and men. *Behav Genet*, 33:563-574. Review. **Cited by 59**

Veenema AH, Meijer OC, De Kloet ER, Koolhaas JM. Genetic selection for coping style predicts stressor susceptibility. *J Neuroendocrinol*, 15:256-267. **Cited by 196**

Veenema AH, Meijer OC, De Kloet ER, Koolhaas JM, Bohus BG. Differences in basal and stress-induced HPA regulation of wild house mice selected for high and low aggression. *Horm Behav*, 43:197-204. **Cited by 214**

Feldker DE, Datson NA, Veenema AH, Meulmeester E, De Kloet ER, Vreugdenhil E. Serial analysis of gene expression predicts structural differences in hippocampus of long attack latency and short attack latency mice. *Eur J Neurosci*, 17:379-387. **Cited by 57**

2002 Van Riel E, Meijer OC, Veenema AH, Joëls M. Hippocampal serotonin responses in short and long attack latency mice. *J Neuroendocrinol*, 14:234-239. **Cited by 43**

2000 Abraham I, Harkany T, Horvath KM, Veenema AH, Penke B, Nyakas C, Luiten PG. Chronic corticosterone administration dose-dependently modulates Abeta(1-42)- and NMDA-induced neurodegeneration in rat magnocellular nucleus basalis. *J Neuroendocrinol*, 12:486-94. **Cited by 102**

1997 Abraham I, Veenema AH, Nyakas C, Harkany T, Bohus BG, Luiten PG. Effect of corticosterone and adrenalectomy on NMDA-induced cholinergic cell death in rat magnocellular nucleus basalis. *J Neuroendocrinol*, 9:713-720. **Cited by 26**

## EXTRAMURAL FUNDING

### Current Funding

NIMH R01MH102456 'Sex-specific regulation of social play'  
Role: **PI**. Funding period: 09/14 – 07/19. Total costs: \$1,744,920

NSF IOS 1735934 'Vasopressin-mediated regulation of juvenile social behaviors'  
Role: **PI**. Funding period: 09/13 – 09/19. Total costs: \$874,462

NSF Postdoctoral Research Fellowship 1906523 'Sex-specific regulation of juvenile social behavior by oxytocin' supporting Dr. Katie Yoest  
Role: **Faculty Sponsor**. Funding period: 03/20 – 03/22. Total costs: \$138,000

Ford Foundation postdoctoral fellowship 'Sex-specific regulation of adolescent social behavior by oxytocin' supporting Dr. Katie Yoest  
Role: **Faculty Sponsor**. Funding period: 09/19 – 03/20. Total costs: \$45,000

### Completed Funding

NIMH R15MH102807 'Sex and age differences in the regulation of social recognition'  
Role: **PI**. Funding period: 01/14 – 01/17. Total costs: \$469,500

The Brain and Behavior Research Foundation, NARSAD Young Investigator Award supporting Dr. Sindy Cole, 'Elucidating the role of the prefrontal cortex in cue-induced overeating: Neuronal ensembles and orexin signaling'. Role: **Co-sponsor**. Funding period: 01/15 – 01/17. Total costs: \$60,000

NIMH F31MH100891, NRSA predoctoral research fellowship supporting Kelly M. Dumais  
Role: **Faculty Sponsor**. Funding period: 10/13 – 10/15. Total costs: \$72,108

NSF GRFP 2012138127, graduate research fellowship supporting Caroline J. Smith  
Role: **Faculty Sponsor**. Funding period: 09/12 – 09/15. Total costs: \$129,000

The Brain and Behavior Research Foundation, NARSAD Young Investigator Award 17382 'Neuropeptide regulation of juvenile social behaviors'

Role: **PI**. Funding period: 07/11 – 07/14. Direct and total costs: \$59,100

German Research Foundation, International Postdoctoral Research Fellowship

Role: **PI**. Funding period: 03/09 – 03/11, declined by PI after 07/10

Bavarian Research Foundation, Postdoctoral Research Fellowship

Role: **PI**. Funding period: 09/04 – 09/05

Bavarian Research Foundation, Postdoctoral Research Fellowship

Role: **PI**. Funding period: 08/03 – 08/04

### INTRAMURAL FUNDING

**Michigan State University - Collaborative funding initiative** (\$15,000)

Role: **Co-PI**. Other PI's: Alex Burt, Joe Lonstein, Alex Johnson. Funding period: fall 2019-spring 2020.

**Michigan State University - Provost Undergraduate Research Initiative** (each \$1500-\$2000, total \$13,000)

Role: **PI**. Funding period: summer 2019 (3 undergrads) fall 2017/spring 2018 (1 undergrad), summer 2018 (1 undergrad), summer 2019 (3 students). Supporting **4 students**: Ashley Chambers '19, Ann Marie Scazzero '20, Leigha Brown '20, Morgen Henry '21.

**Boston College - Research Incentive Grant** (each \$15,000, total \$30,000)

Role: **PI**. Funding period: 2011-2012, 2014-2015

**Boston College - Research Expense Grant** (each \$2,000, total \$12,000)

Role: **PI**. Funding period: summer/fall 2011, 2012, 2013, 2015; winter/spring 2011/2012; winter/spring 2013/2014

**Boston College - Undergraduate Research Fellowship** (total \$44,200)

Role: **PI**. Funding period: summer 2011 (1 undergrad), fall 2011 (1 undergrad), summer 2012 (4 undergrads), summer 2013 (7 undergrads), spring 2014 (1 undergrad), summer 2014 (8 undergrads), summer 2015 (8 undergrads), summer 2016 (6 undergrads). Supporting **24 students**: Thomas Mayer '12, Evangelina Barnard '13, Gabriela Hidalgo '13, Jazmin Mogavero '13, Danielle Scaramella '13, Andrea Alonso ('14, Marisa Immormino '14, Kayla Reardon '14, Jennifer Schiavo '14, Kevin Wilkins '14, Christine Wu '14, Sterling Karakula '15, Laura Newman '15, Aarane Ratnaseelan '16, Sara Li '16, Grace Ro '16, Daniel Cho '16, Elizabeth Nussbaum '16, Harry Cheung '17, Cassandra Gergely '17, Tessa Gillespie '17, Jing Ting Yuan '17, Shannon Cieslewski '18, Maxwell Tulimieri '18

### AWARDS AND HONORS

2019 MSU Undergraduate Research Faculty Mentor of the Year Award

2013 NSF Career Award

2013 Boston College Faculty Research Fellowship

2011 NARSAD Young Investigator Award

2010 Elizabeth Young New Investigator Award (from the Organization for the Study of Sex Differences)

**AWARDS AND HONORS VEENEMA LAB MEMBERS**

Member of Dr. Veenema's lab: **1**=undergraduate student, **2**=graduate student, **3**=postdoc

- 2019 **NSF Postdoctoral Research Fellowship** to Katie Yoest<sup>3</sup>  
**Society for Neuroscience Travel Award** to Christina Reppucci<sup>3</sup>, to attend the *International Brain Research Organization World Congress of Neuroscience*, Daegu, South Korea  
**MSU Motivated Behavior Symposium Poster award** to Christina Reppucci<sup>3</sup>  
**MSU CSS Research Scholars Award** to Jessica Lee<sup>2</sup>  
**Ford Foundation postdoctoral fellowship** to Katie Yoest<sup>3</sup>  
**MSU Honors College Hymen and Miriam Stein Scholarship** to Ann Marie Scazzero<sup>1</sup>  
**MSU College of Social Science Dean's Assistantship** to Ann Marie Scazzero<sup>1</sup>  
**Kenneth E. and Marie J. Corey Research Enrichment Fund** to Ann Marie Scazzero<sup>1</sup>  
**MSU Provost Undergraduate Research Initiative Award** to Ann Marie Scazzero<sup>1</sup>  
**MSU Provost Undergraduate Research Initiative Award** to Leigha Brown<sup>1</sup>  
**MSU Provost Undergraduate Research Initiative Award** to Morgen Henry<sup>1</sup>  
**Society for Behavioral Neuroendocrinology New Investigator Award** to Christina Reppucci<sup>3</sup>, to give a talk at the annual meeting of the Society for Behavioral Neuroendocrinology, Bloomington, IL, USA  
**MSU first prize UURAF poster award** to Ann Marie Scazzero<sup>1</sup>  
**MSU first prize UURAF poster award** to Ashley Chambers<sup>1</sup>
- 2018 **MSU Provost Undergraduate Research Initiative Award** to Ashley Chambers<sup>1</sup>
- 2017 **MSU Provost Undergraduate Research Initiative Award** to Ashley Chambers<sup>1</sup>  
**First place in talk competition of the Michigan Regional Postdoctoral Symposium** by Dr. Christina Reppucci<sup>3</sup>  
**Glenn I. Hatton Memorial Fellowship** to Dr. Christina Reppucci<sup>3</sup> to attend and give a talk at the *World Conference on Neurohypophysial Hormones*, Mangaratiba, Brazil  
**American Physiology Society Travel Award** to Dr. Justin Smith<sup>3</sup> to attend the *World Conference on Neurohypophysial Hormones*, Mangaratiba, Brazil
- 2016 **Boston College Donald and Helene White Dissertation Award** to Kelly Dumais<sup>2</sup>  
**Boston College Scholar of the College Student**, Daniel Cho<sup>1</sup>
- 2015 **Boston College GSAS Dissertation Fellowship**, Kelly Dumais<sup>2</sup>, to provide a stipend for one year  
**Boston College Advanced Study Grant**, Grace Ro<sup>1</sup>  
**Boston College Scholar of the College Student**, Laura Newman<sup>1</sup>
- 2014 **Boston College Engelhard Pingree Research Fellowship**, Kelly Dumais<sup>2</sup>, given to a graduate student deemed to have made the greatest contribution to the research mission of the Graduate School of Arts & Sciences at Boston College  
**Travel Award**, Kelly Dumais<sup>2</sup>, to attend the *Biannual Meeting of the FENS Forum of Neuroscience*, Milan, Italy  
**Travel Award**, Caroline Smith<sup>2</sup>, to attend the *Biannual Meeting of the FENS Forum of Neuroscience*, Milan, Italy  
**Boston College Scholar of the College Student**, Jennifer Schiavo<sup>1</sup>
- 2012 **Poster Award**, Kelly Dumais<sup>2</sup>, *Annual Symposium of the Center for Neuroendocrine Studies*, Amherst, MA  
**Travel Award**, Remco Bredewold, to attend the *Annual Meeting of the Society for Social Neuroscience*, New Orleans, LA
- 2011 **Travel award**, Kelly Dumais<sup>2</sup>, to attend the *Workshop on the Biology of Pro-Social Behavior*, Emory University, Atlanta  
**Travel Award**, Caroline Smith<sup>2</sup>, to attend the *Workshop on the Biology of Pro-Social Behavior*, Emory University, Atlanta, GA



---

## DIRECTION OF RESEARCH

**Direction of postdoctoral research**

09/2018-present      Katie E. Yoest  
 09/2015-present      Christina J. Reppucci  
 09/2016-09/2017      Justin A. Smith  
 09/2014-09/2016      Brett T. DiBenedictis (current: Lecturer, Boston University)

**Direction of Ph.D. research**

2019-present          Samantha Bowden  
 2018-present          Jessica Lee  
 2017-present          Sang Yun (Henry) Yang  
 2011-2017              Caroline J. Smith (current: Postdoc, Harvard Medical School)  
 2010-2016              Kelly M. Dumais (current: Clinical Science Advisor, EMT)

**Direction of M.A./M.S. research**

2013-2016              Nicholas Worley (current PhD student, Boston College)  
 2014-2015              Michelle Verreij (visiting scholar, University of Groningen, the Netherlands)

**Direction of Undergraduate Research at MSU (since 2017)**

Senior Thesis: Ashley Chambers '19, Ann Marie Scazzero '20

NIH ENDURE diversity summer undergrad research: Natasha Mendez (2018)

Volunteer Research Assistant: Ashley Chambers '19, Suhanna Posana '19, Ann Marie Scazzero '20, Leigha Brown '20, Elie Huez '21, Valerie Khyakin '21, Morgen Henry '21, Haley Velisek '21

**Direction of Undergraduate Research at Boston College (2010-2016)**

Boston College Scholar of the College Thesis (3 students): Jennifer Schiavo '14, Laura Newman '15, Daniel Cho '16

Senior Thesis (14 students): Thomas Mayer '12, Jazmin Mogavero '13, Andrea Alonso '14, Marisa Immormino '14, Kevin Wilkins '14, Christine Wu '14, Aarane Ratnaseelan '16, Sara Li '16, Grace Ro '16, Elizabeth Nussbaum '16, Harry Cheung '17, Cassandra Gergely '17, Tessa Gillespie '17, Jing Ting Yuan '17

Independent Study (19 students): Thomas Mayer '12, Jazmin Mogaverro '13, Kayla Reardon '14, Danielle Scaramella '13, Andrea Alonso '14, Marisa Immormino '14, Jennifer Schiavo '14, Kevin Wilkins '14, Christine Wu '14, Sterling Karakula '15, Laura Newman '15, Aarane Ratnaseelan '16, Daniel Cho '16, Sara Li '16, Grace Ro '16, Harry Cheung '17, Cassandra Gergely '17, Jing Ting Yuan '17, Shannon Cieslewski '18

---

## THESIS COMMITTEES

**Doctoral Dissertation Committee (15 students)**

2019-present      **Samantha Bowden**, Department of Psychology, MSU (**advisor**)  
                          **Lauren Pageau**, Department of Psychology, MSU (member)  
                          **Natasha Fowler**, Department of Psychology, MSU (member)  
                          **Taryn Meinhardt**, Department of Psychology, MSU (member)  
 2018-present      **Jessica Lee**, Department of Psychology, MSU (**advisor**)  
                          **Tracy Montgomery**, Department of Integrative Biology, MSU (member)  
 2017-present      **Sang Yun (Henry) Yang**, Department of Psychology, MSU (**advisor**)  
                          **Amanda White**, Department of Psychiatry, University of Michigan (member)  
                          **Erika Vitale**, Department of Psychology, MSU (member)  
                          **Lauren Raycraft**, Department of Psychology, MSU (member)

- 2013-2019 **Sarah Kark**, PhD defense, Department of Psychology, BC (member)
- 2011-2017 **Caroline Smith**, PhD defense, Department of Psychology, BC (**advisor**)  
Thesis: Development of oxytocin, vasopressin V1a, and mu-opioid receptor expression in the rat brain: implications for the regulation of juvenile social novelty-seeking behavior
- 2010-2016 **Kelly A. Bennion**, PhD defense, Department of Psychology, BC (member)  
**Kelly M. Dumais**, PhD defense, Department of Psychology, BC (**advisor**)  
Thesis: Involvement of the oxytocin system in sex-specific regulation of social behavior and in sex-specific brain activation
- 2015 **Christina Reppucci**, PhD defense, Department of Psychology, BC (member)  
**Elizabeth N. Holly**, PhD defense, Sackler School of Graduate Biomedical Sciences, Tufts University (external member)  
**Callum Hicks**, PhD defense, School of Psychology, University of Sydney, Australia (thesis examiner)
- 2014 **Joshua J. Meidenbauer**, PhD defense, Department of Biology, BC (member)
- Master's Thesis Committee (12 students)**
- 2016 **Morgan Rogers**, Master's defense, Department of Psychology, BC (member)  
**Nicholas Worley**, Master's defense, Department of Psychology, BC (**advisor**)  
Thesis: Mechanisms underlying sex differences in the oxytocin system  
**Allison Foilb**, Master's defense, Department of Psychology, BC (member)  
**Brittany Jeye**, Master's defense, Department of Psychology, BC (member)
- 2015 **Sarah Kark**, Master's defense, Department of Psychology, BC (member)
- 2014 **Sara E. Keefer**, Master's defense, Department of Psychology, BC (member)  
**Lauren C. Anderson**, Master's defense, Department of Psychology, BC (member)
- 2013 **Caroline J. Smith**, Master's defense, Department of Psychology, BC (**advisor**)  
Thesis: Neural modulation of social novelty-seeking behavior in the juvenile rat  
**Kelly A. Bennion**, Master's defense, Department of Psychology, BC (member)
- 2012 **Kelly M. Dumais**, Master's defense, Department of Psychology, BC (**advisor**)  
Thesis: Sex hormone and oxytocin regulation of male and female social interest and recognition: Oxytocin receptor densities correlate with social interest  
**Joshua J. Meidenbauer**, Master's defense, Department of Biology, BC (member)
- 2011 **Jaelyn Portelli**, Master's defense, Department of Psychology, BC (member)

#### MENTORING RESEARCH (Prior to Faculty Position)

##### Co-mentoring Ph.D. Research (co-mentored with Dr. Inga D. Neumann)

- 2007-2011 **Michael Lukas**, University of Regensburg, thesis defense: Oct 21, 2011  
Thesis: Effects of central neuropeptides on social preference and social recognition in male rats
- 2005-2009 **Daniela I. Beiderbeck**, University of Regensburg, thesis defense: May 4, 2009  
Thesis: 'Underlying neurobiological mechanisms of high and abnormal aggression in male rats: link to trait anxiety'

##### Mentoring Undergraduate Research

- 2009-2010 Senior honors research thesis, UMass-Amherst, Chido Kativhu
- 2007-2008 Bachelor thesis (6-month full-time), Univ. of Regensburg, Sophie Koszinowski
- 2003-2008 Research thesis (9-month full-time), University of Regensburg  
Daniela Niederle, Sandra Selch, Daniela Beiderbeck, Elisabeth Martin, Michael Lukas, Teresa Dintenfelder, Iulia Toth

1998-2003 Research thesis (6-month full-time), University of Groningen  
Erwin Buist, Evelijn Gerstel, Trynke de Jong, Simon Grootendijk,  
Betty Sijtsma, Anke Roelofs

---

### INVITED TALKS

- 2020 'Implications of sex differences in the juvenile and adult vasopressin system for the regulation of social behavior oxytocin', *International Symposium on Regulatory Peptides*, Acapulco, Mexico, Sep 19-23
- 'Role of dopamine in the regulation of social play behavior in male and female juvenile rats', *Dopamine 2020*, Montreal, Canada, May 18-22
- 'Function of sex differences in the brain for behavior: Insights from vasopressin and oxytocin', *Janelia Conference on Neuropeptide Signaling*, Ashburn, VA, USA, April 19-22
- 'Function of sex differences in the brain for behavior: Insights from vasopressin and oxytocin', *University of Maryland School of Medicine*, Baltimore, MD, USA, March 10
- 'Role of vasopressin in sex- and age-specific regulation of social behaviors', *Winter Conference on Brain Research*, Big Sky, MN, USA, Jan 25-30
- 'Sex-specific involvement of oxytocin in the regulation of social behavior', *Winter Conference on Brain Research*, Big Sky, MN, USA, Jan 25-30
- 2019 'Function of sex differences in the brain for behavior: Insights from vasopressin and oxytocin', *The Arctic University of Norway*, Tromsø, Norway
- 'Function of sex differences in the brain for behavior: Insights from vasopressin and oxytocin', *European Behavioral Pharmacology Society meeting*, Braga, Portugal
- 'Function of sex differences in the brain for behavior: Insights from vasopressin and oxytocin', *Bucknell University*, Lewisburg, PA
- 'Function of sex differences in the brain for behavior: Insights from vasopressin and oxytocin', *University of Illinois*, Urbana-Champaign, IL
- 2018 'Developmental and sex-specific involvement of vasopressin in the regulation of social behavior', *International Symposium on Regulatory Peptides*, Acapulco, Mexico, Sep 22-25
- 'Function of sex differences in the brain for behavior: Insights from vasopressin and oxytocin', *Clinical Psychology*, Michigan State University, East Lansing, MI
- 'Function of sex differences in the brain for behavior: Insights from vasopressin and oxytocin', *University of Michigan*, Ann Arbor, MI
- 'Function of sex differences in the brain for social behavior: Relevance for understanding the sex bias in autism', *Center for Research in Autism, Intellectual and other Neurodevelopmental Disabilities*, Michigan State University, East Lansing, MI
- 2017 'Role of opioids and oxytocin in social behavior', *Oslo University Hospital*, Oslo, Norway
- 'Function of sex differences in the brain for behavior: Insights from vasopressin and oxytocin', *Rosalind Franklin University of Medicine and Science*, North Chicago, IL
- 'Vasopressin involved in preventing and inducing sex differences in behavior: A tale of two brain regions', *Society for Neuroscience meeting*, Washington DC

- 'Dual function of sex differences in the brain vasopressin system: preventing and inducing sex differences in social behavior', *World Congress on Neurohypophysial Hormones*, Mangaratiba, Rio de Janeiro, Brazil
- 'Role of opioid and vasopressin systems in socially rewarding behaviors', *International Behavioral Neuroscience Society meeting*, Hiroshima, Japan
- 'Role of opioid and vasopressin systems in juvenile socially rewarding behaviors', *Neuroscience Program*, Michigan State University, East Lansing, MI
- 2016 'Role of opioid and vasopressin systems in socially rewarding juvenile behaviors', *University of Massachusetts*, Amherst, MA
- 'Sex differences in the brain prevent sex differences in social behavior', *Society for Social Neuroscience meeting*, San Diego, CA
- 'Implications of sex differences in the oxytocin system for the regulation of social behavior', *University Medical Center Utrecht*, Utrecht, the Netherlands
- 'Role of opioid and vasopressin systems in socially rewarding juvenile behaviors', *FENS Forum of Neuroscience meeting*, Copenhagen, Denmark
- 'Implications of sex differences in the oxytocin system for the regulation of social behavior', *Massachusetts General Hospital*, Department of Psychiatry, Boston, MA
- 2015 'Implications of sex differences in the oxytocin system for the regulation of social behavior', *Massachusetts General Hospital*, Neuroendocrine Unit, Boston, MA
- 'Plasticity in neuropeptide regulation of juvenile social behavior: Sex and social context matter', *Society for Behavioral Neuroendocrinology meeting*, Pacific Grove, CA
- 'Sex-specific regulation of social play behavior by vasopressin and oxytocin in juvenile rats', *Eastern Psychological Association meeting*, Philadelphia, PA
- 'Sex-specific regulation of social behavior by vasopressin and oxytocin', *Winter Conference on Brain Research*, Big Sky, MT
- 2014 'Age- and sex-specific regulation of social behavior by vasopressin and oxytocin', *University of Massachusetts*, Amherst, MA
- 'Implications of sex differences in the oxytocin system for the regulation of social behavior', *International Society of Psychoneuroendocrinology meeting*, Montreal, Canada
- 'Mechanisms underlying sex-specific regulation of juvenile social play by vasopressin', *International Society of Psychoneuroendocrinology meeting*, Montreal, Canada
- 'Age- and sex-specific regulation of social behavior by vasopressin and oxytocin', *Eastern Psychological Association meeting*, Boston, MA
- 'Sex-specific regulation of social behavior by vasopressin and oxytocin', *Annual Social Brain Sciences Symposium*, Chestnut Hill, MA
- 2013 'Regulation of social behavior by vasopressin and oxytocin: Effects of early life stress, sex, and age', *Harvard University*, Cambridge, MA
- 'Sex-specific effects of oxytocin on social information processing in rats', *European Brain and Behaviour Society meeting*, Munich, Germany

- 'Key roles for vasopressin and oxytocin in the sex-specific regulation of juvenile social behaviors', *Annual Meeting of the Society for Behavioral Neuroendocrinology*, Atlanta, GA
- 'Sex-specific expression and regulation of social behavior: Involvement of vasopressin and oxytocin systems', *University of California*, Davis, CA
- 'The oxytocin system and social behavior: Effects of sex, age, and early life stress', *68<sup>th</sup> Annual Meeting of the Society for Biological Psychiatry*, San Francisco, CA
- 'Vasopressin and oxytocin as mediators of stress and social behavior', *University of Groningen*, the Netherlands
- 'Vasopressin and oxytocin as mediators of stress and social behavior', *McLean Hospital*, Belmont, MA
- 'Effects of early life stress on social behaviors: Link to alterations in oxytocin and vasopressin brain systems', *Maine Medical Center*, Portland, ME
- 'Effects of early-life social experiences on vasopressin- and oxytocin-mediated social and emotional behaviors', *Social Neuroendocrinology Pre-conference*, New Orleans, LA
- 2012 'Vasopressin and oxytocin as mediators of stress and social behavior', *Massachusetts General Hospital*, Boston, MA
- 'Quality of the early life social environment determines differential expression of juvenile and adult social behaviors: Link to vasopressin and oxytocin systems', *University of Chicago*, Chicago, IL
- 'Quality of the early life social environment determines differential expression of juvenile and adult aggressive behaviors: Link to vasopressin and oxytocin systems', *Bi-Bi-Annual World Meeting of the International Society for Research on Aggression*, Luxembourg
- 'Effects of early-life social experiences on vasopressin- and oxytocin-mediated social and emotional behaviors', *Annual Meeting of the International Behavioural and Neural Genetics Society*, Boulder, CO
- 2011 'Vasopressin and oxytocin as mediators of social behavior', *Cornell University*, Ithaca, NY
- 'Early life stress: Impact on social, brain, and immune function', *Children's Hospital Boston*, MA
- 'Early life stress alters vasopressin-regulated social behaviors', *Dutch Endo-Neuro-Psycho Annual Meeting*, the Netherlands
- 2010 'Early life stress: Impact on social, brain, and immune function', *Biology Department, Boston College*
- 'Early life stress: Impact on social, brain, and immune function', *Bowdoin College*, Brunswick, ME
- 'Early life stress affects the development of vasopressin-regulated social behavior', *Annual Meeting of the American College of Neuropsychopharmacology*, Miami Beach, FL
- 'Age- and brain region-specific effects of vasopressin on aggression and social recognition', *Bi-Annual World Meeting of the International Society for Research on Aggression*, Storrs, CT
- 'Key role for the neuropeptide vasopressin in sex-specific regulation of juvenile social behavior', *Annual Meeting of the Organization for the Study of Sex Differences*, Ann Arbor, MI
- 2009 'Early life stress: Impact on social, brain, and immune function', *University of Connecticut*, Storrs, CT

- 'Does vasopressin regulate intermale aggression? In vivo vasopressin release during resident-intruder encounters gives new insights', *NIMH*, Bethesda, MD
- 'Does vasopressin regulate intermale aggression? Intracerebral vasopressin release during resident-intruder encounters gives new insights', *Neuropeptide Satellite Meeting*, Chicago, IL
- 'Early life stress and the development of aggression and social recognition: a link to vasopressin', *Context, Causes, and Consequences of Conflict Workshop*, Leiden, The Netherlands
- 'Effects of early life stress on the development of aggression and social recognition: Link to alterations in central vasopressin activity', *European Society for Child and Adolescent Psychiatry meeting*, Budapest, Hungary
- 'Impact of early life stress and genetic factors on the regulation of social behaviors' *University of Massachusetts*, Amherst, MA
- 2008 'Impact of early life stress and genetic factors on the regulation of social behaviors', *Boston College*, Chestnut Hill, MA
- 'Long-term effects of early life stress on aggression and cognition associated with changes in central vasopressin activity', *12<sup>th</sup> Annual Meeting of the Society for Behavioral Neuroendocrinology*, Groningen, The Netherlands
- 2007 'Modulation of aggression and social cognition by early life stress and neuropeptides', *University of Wisconsin*, Madison, WI
- 'Modulation of aggression and social cognition by early life stress and neuropeptides', *University of Massachusetts*, Amherst, MA
- 'Early life stress increases male aggression and impairs social cognition: Link to alterations in brain vasopressin activity', *7<sup>th</sup> World Congress on Neurohypophysial Hormones*, Regensburg, Germany
- 'Monitoring of neuropeptide release during social behaviours within distinct brain regions using microdialysis and behavioural manipulations using retrodialysis', *39<sup>th</sup> Annual Meeting of the European Brain and Behaviour Society*, Trieste, Italy
- 2006 'Animal models to study depression and aggression', *Institute of Experimental Medicine*, Budapest, Hungary
- 'Stress responses, aggression and coping strategies in different rodent models', *Karger workshop/JB Johnson club*, Atlanta, GA
- 2005 'Animal models to study depression and aggression co-morbidity', *Lundbeck Research USA Inc.*, Newark, NJ
- 2004 'Changes in adult cell proliferation in low and high aggressive mice in relation to inborn alterations in HPA axis activity', *3<sup>rd</sup> Dutch Endo-Neuro-Psycho meeting*, Doorwerth, the Netherlands
- 2003 'Differences in HPA and 5-HT responsiveness in two mouse lines', *20<sup>th</sup> Workshop on Individual Differences in Behaviour and Physiology: Causes and Consequences*, Erice, Sicily, Italy
- 'Differences in basal and stress-induced changes HPA regulation of wild house mice selected for high and low aggression', *2<sup>nd</sup> Dutch Endo-Neuro-Psycho meeting*, Doorwerth, the Netherlands
- 2002 'Coping style and stressor susceptibility', *University of Regensburg*, Regensburg, Germany
- 'Coping style and stressor susceptibility', *Max Planck Institute of Psychiatry*, Munich, Germany

'Differences in stress-reactivity in two mouse lines genetically selected for high and low aggression', *Annual meeting of the Dutch Contact Group for Behavioral Genetics*, Utrecht, the Netherlands

- 2001 'Behavioral and neuroendocrine characteristics of wild house mice genetically selected for high and low aggression: Beyond a model of aggression', *5<sup>th</sup> Dutch Endo-Neuro meeting*, Doorwerth, the Netherlands

### INVITED TALKS VEENEMA LAB MEMBERS

Member of Dr. Veenema's lab: **1**=graduate student, **2**=undergraduate student, **3**=postdoc

- 2019 Dr. Christina Reppucci<sup>3</sup>, 'Involvement of the ventral tegmental area in socially rewarding behavior in juvenile male and female rats', *Society for Behavioral Neuroendocrinology meeting*, Bloomington, IN
- 2018 Dr. Christina Reppucci<sup>3</sup>, 'Neural substrates underlying social motivation in juvenile rats', *Society for Neuroscience meeting*, San Diego, CA
- 2017 Dr. Christina Reppucci<sup>3</sup>, 'Recruitment of Vasopressin and Oxytocin Neurons in the Paraventricular and Supraoptic Hypothalamic Nuclei During Social Play in Juvenile Male and Female Rats', *World Congress on Neurohypophysial Hormones*, Mangaratiba, Rio de Janeiro, Brazil
- 2017 Caroline Smith<sup>2</sup>, 'Regulation of social behavior by the brain oxytocin system during development: Possible interactions with the vasopressin system', *Massachusetts General Hospital, Neuroendocrine Unit*, Boston, MA
- 2016 Kelly Dumais<sup>2</sup>, 'Oxytocin regulates social behavior and activates neural circuits in sex-specific ways in rats', *Massachusetts General Hospital, Neuroendocrine Unit*, Boston, MA
- Caroline Smith<sup>2</sup>, 'Unraveling the neural basis of social novelty-seeking during adolescence: Involvement of oxytocin and opioids', *Social Brain Sciences Symposium*, Brandeis University, Waltham, MA
- Kelly Dumais<sup>2</sup>, 'Sex differences in neural activation following oxytocin administration in awake rats', *Social Brain Science Symposium*, Brandeis University, Waltham, MA
- 2014 Kelly Dumais<sup>2</sup>, 'Neural basis of sex-specific regulation of social behavior: Focus on the oxytocin system', *Social Brain Sciences Symposium*, Boston College, Chestnut Hill, MA
- Caroline Smith<sup>2</sup>, 'Social isolation impairs while oxytocin facilitates social novelty-seeking behavior in the juvenile rat', *Social Brain Sciences Symposium*, Boston College, Chestnut Hill, MA

---

### PROFESSIONAL SERVICES

- Present **Secretary & Treasurer**, Society for Social Neuroscience (2018-2021)  
**Review Editor**, journal *Frontiers in Endocrinology* (since 2017)  
**Editorial Board member**, journal *Social Neuroscience* (since 2017)  
**Editorial Board member**, Journal *Hormones and Behavior* (since 2015)  
**Board member**, Society for Social Neuroscience (since 2015)  
**Review Editor**, journal *Frontiers in Behavioral Neuroscience* (since 2009)
- 2020-2021 **International Advisory Committee member**, 14<sup>th</sup> World Congress on Neurohypophysial Hormones
- 2019-2020 **Program Committee Chair**, *Society for Behavioral Neuroendocrinology* annual meeting

- 2019 **Program Committee member**, *Society for Behavioral Neuroendocrinology* annual meeting  
**Symposium chair**, *World Congress of Neurohypophysial Hormones*, Ein Gedi, Israel, May 8-11  
**Ad hoc reviewer**, NIMH Board of Scientific Counselors
- 2018 **Minisymposium Co-Chair**, 'Social motivation across the life span', *Annual Meeting of the Society for Neuroscience*, San Diego, CA, November 3-7
- 2017 **Symposium Co-Chair**, 'Neurobiological mechanisms of social and non-social reward', *Annual Meeting of the International Behavioral Neuroscience Society*, Hiroshima, Japan, June 26 – 30
- 2016 **Symposium Chair**, 'What do we learn about the social brain by adding sex as biological variable?' *Annual Meeting of the Society for Social Neuroscience*, San Diego CA, Nov 11  
**Symposium Chair**, 'Neurobiology of social reward and attachment', *FENS Forum of Neuroscience Biannual Meeting*, Copenhagen, Denmark, July 2 – 6
- 2015 **Co-chair of the Program Committee**, *6<sup>th</sup> Annual Meeting of the Society for Social Neuroscience*, Chicago IL, Oct 16  
**Symposium Chair**, 'Bed nucleus of the stria terminalis: A modulator of social behavior and stress responses in males and females', *Annual Meeting of the Society for Behavioral Neuroendocrinology*, Pacific Grove CA, June 10 - 14
- 2014 **Co-Chair of the Program Committee**, *5<sup>th</sup> Annual Meeting of the Society for Social Neuroscience*, Washington DC, Nov 13 -14  
**Symposium Chair**, 'Regulation of social behavior: Focus on sex differences', *44<sup>th</sup> Annual Meeting of the International Society of Psychoneuroendocrinology*, Montreal, Canada, Aug 19 - 22
- 2013 **Symposium Chair**, 'Oxytocin, brain function, and social behaviour', *45<sup>th</sup> Meeting of the European Brain and Behaviour Society*, Munich, Germany, Sept 6 - 9
- 2011 **Co-Chair of Workshop** "Building a career in academia", UMass-Amherst  
**Guest-Editor**, Special Issue of the *Journal of Neuroendocrinology*  
**Chair of the Organizing Committee**, *9<sup>th</sup> World Congress on Neurohypophysial Hormones*, Boston, MA, July 27 - 30  
**Symposium Chair**, 'Stress legacy: past, present, and future', *9<sup>th</sup> Dutch Endo-Neuro-Psycho Meeting*, Lunteren, the Netherlands, May 30 - June 1
- 2010 **Symposium Chair**, "Vasopressin and vasotocin as regulators of aggression and other social behaviors", *19<sup>th</sup> World Conference of the International Society of Research on Aggression*, Storrs CT, July 27 - 31
- 2006-2009 **Coordinator**, *International Master's Programme in Experimental and Clinical Neurosciences*, University of Regensburg, Germany
- 2004-2009 **Organizer and discussion leader**, weekly scientific seminars at the Department of Behavioral Neuroendocrinology, University of Regensburg, Germany

#### **Panel Grant Reviewer**

- 2019 NIH Neurobiology of Motivated Behavior Study Section  
2018 NIH Neurobiology of Motivated Behavior Study Section  
2017 NSF Division of Integrative Organismal Systems, Neural Systems – Modulation  
2016 NSF Graduate Research Fellowship Program (GRFP), Psychology  
2014 NSF Division of Integrative Organismal Systems, Neural Systems – Modulation  
2013 NSF Division of Integrative Organismal Systems, Neural Systems – Modulation

#### **Ad-hoc Grant Reviewer**

- 2019 Israel Science Foundation  
DFG German Research Foundation  
2017 NWO Dutch Research Foundation  
NIH Special Emphasis Panel for Biobehavioral and Behavioral Processes



- 2016 NSF Division of Integrative Organismal Systems, Neural Systems – Modulation  
 2015 NWO Dutch Research Foundation  
 2014 Human Frontiers Science Program  
 OTKA Hungarian Scientific Research Fund  
 2013 Harry Frank Guggenheim Foundation  
 NSF Division of Integrative Organismal Systems, Neural Systems - Modulation  
 2011 NSF Division of Integrative Organismal Systems, Neural Systems Cluster  
 2010 NSF Division of Integrative Organismal Systems, Neural Systems Cluster  
 2009 DFG German Research Foundation  
 2008 NWO Dutch Research Foundation

**Ad-hoc Reviewer for International Peer-Reviewed Scientific Journals (n=29)**

Behavioural Brain Research; Behavior Genetics; Behavioral Neuroscience; Behavior Research Methods; Biology Letters; Biological Psychiatry; Brain Research; Current Biology; Current Neurobiology; Frontiers in Behavioral Neuroscience; Genes, Brain and Behavior; Hormones and Behavior; International Journal of Developmental Neuroscience; International Journal of Neuropsychopharmacology; Journal of Evolutionary Biology; Journal of Neuroendocrinology; Journal of Visual Experiments; Neural Plasticity; Neuropharmacology; Neuropsychopharmacology; Neuroscience and Biobehavioral Reviews; Neuroscience Letters; Physiology and Behavior; PLoS One; Progress in Neuro-Psychopharmacology & Biological Psychiatry; Psychoneuroendocrinology; Psychopharmacology; Translational Psychiatry; Scientific Reports

**Professional Affiliations**

Federation of European Neuroscience Societies  
 International Behavioral Neuroscience Society  
 Organization for the Study of Sex Differences  
 Society for Behavioral Neuroendocrinology  
 Society for Neuroscience  
 Society for Social Neuroscience

---

**UNIVERSITY SERVICES**

Michigan State University (since 2017)

- Present Member, Advisory Committee to the Chair, Psychology Department, MSU (2018-2024)  
 Member, Faculty Advisory Committee, MSU Neuroscience Program (2017-2020)  
 2017-2019 Chair, Behavioral Neuroscience Graduate Student Admissions

**UNIVERSITY SERVICES**

Boston College (2010-2016)

- 2014-2016 Chair, Colloquium Committee, BC Psychology Department  
 2014-2015 Member, Cognitive Neuroscience Search Committee, BC Psychology Department  
 Member, Department Name Change Committee, BC Psychology Department  
 2012-2013 Member, Behavioral Neuroscience Search Committee, BC Psychology Department  
 2012 Member, Scholar of the College, McCarthy Prize, BC  
 Member, RIG committee, BC  
 2012-2016 Member, Higgins Safety Committee, BC  
 2011-2016 Member, IACUC committee, BC  
 2011-2012 Member, Behavioral Neuroscience Search Committee, BC Psychology Department

- 2010-2014 Member, Graduate Evaluation Committee, BC Psychology Department  
 2010-2011 Member, Graduate Admissions & Recruitment Committee, BC Psychology Department  
 Member, Strategic Planning Committee, BC Psychology Department  
 2010-2016 Undergraduate Advising, BC Psychology Department
- 

## TEACHING

### Courses at Michigan State University (2017-present)

- Brain and Behavior, undergraduate course  
 Neuroscience of Psychopathologies, undergraduate course  
 Neurobiology of Stress, graduate seminar

### Courses at Boston College (2010-2016)

- Neurobiology of Stress, undergraduate course  
 Neuroscience of Psychopathology, undergraduate course  
 Neural Systems and Stress, graduate seminar  
 Neurobiology of Mental Illness, graduate seminar  
 Neuroscience Proseminar, graduate proseminar (co-teacher)

### Guest Lectures

- 2013 Graduate seminar on Social and Affective Neuroscience, Department of Psychology, Harvard University

### Lectures at the University of Regensburg

- 2007-2009 Osmoregulation and Excretion (Lectures integrated in the annual 'Animal Physiology' Undergraduate Course, taught in German)  
 2006-2009 Systems Neuroscience (Annual lectures within the International Master's Program in 'Experimental and Clinical Neurosciences', taught in English)

### Teaching Assistantships at the University of Groningen / University of Regensburg

- 2004-2009 Zoology (Annual 2-week full-time research projects)  
 2003-2009 Neurobiology and Neuroendocrinology (Annual 6-week full-time research projects)  
 2003 Behavioural Pharmacology (Annual 4-week full-time research projects)  
 1998-2001 Animal Physiology (Annual 4-week full-time research projects)
- 

## OUTREACH ACTIVITIES

- Present **Participation** of the Veenema Lab in **Brain Awareness Activities** (since 2010), including the annual **MSU Neuroscience Fair**, **MSU Brain Bee**, and **MSU Elementary Science Nights**  
**Participation** of the Veenema Lab in **MSU Girls' STEM Day**
- 2019 Participation in the **Meet the Professor Lunch** held during the annual meeting of the Society for Behavioral Neuroendocrinology  
 Gave a **Talk at Stand up Science** organized by Shane Mauss
- 2018 **Panelist** in a **Panel Discussion** on **NSF GRFP applications** at MSU with the audience being senior undergraduate students and first-year and second-year graduate students  
**Participation** in a lunch with undergraduate minority students selected for the **MSU Summer Research Opportunities Program** to talk about strategies applying to graduate school
-

- Mentoring** Natasha Mendez, an undergraduate student from Puerto Rico who participates in NIH Blueprint Initiative Neuroscience Program to "**Enhancing Neuroscience Diversity through Undergraduate Research Education Experiences (ENDURE)**" at MSU and receives hands-on training and mentoring in the lab over the summer
- Panelist** in a **Research Forum** "Getting The Most Out of Your Conference Experience", MSU Neuroscience program
- 2017 **Neuroscience Lab Open House**, MSU Neuroscience undergraduate students interested in research were invited to get an inside look at the research conducted in the Veenema lab with live demonstrations and hands-on opportunities
- Psychology Research Open House**, MSU Psychology undergraduate students interested in research were invited to get an inside look at the research conducted in the Veenema lab with live demonstrations and hands-on opportunities
- Panelist** in a **Panel Discussion on NSF GRFP applications** at MSU with the audience being senior undergraduate students and first-year and second-year graduate students
- 2016 **Mentoring High School student** Julia Kastner who participates in the program InSPIRE (Interested Students Pursuing Internship Research Experiences) at Concord Academy, Concord, MA and was an intern in the Veenema lab over the summer of 2016
- Bring-your-parents-to-the-lab-day** (May 21), family of students and staff members of the Veenema lab were invited to get an inside look at the research conducted in the Veenema lab with live demonstrations and hands-on opportunities
- 2015-2017 **Mentoring High School student** Zoe Shaw, who participates in the Science Research Program at John Jay High School, New York, NY and was an intern in the Veenema lab over the summer of 2016
- 2015 **Mentor** in a **Trainee Workshop on Funding Opportunities at NSF and NIH** at UMass-Amherst
- Interviewed** by the **Thompson Island Outward Bound Education Center** to talk about what it is like to be a behavioral neuroscientist
- Speaker** at **MIT Museum** Second Fridays Program "A good night for a bad date", giving a talk about sex differences in social behavior and the roles of vasopressin and oxytocin in mediating these differences
- 2014 **Mentor** in the **Mentor/Mentee program** of the *International Society of Psychoneuroendocrinology* to advise young fellows on academic and personal matters related to a career in the field of Psychoneuroendocrinology
- Panelist** in a **Panel Discussion on Women in Science** at Boston College
- 2013 **Speaker** at the **Summer Science Institute** for High School/Middle School Science teachers at the Dover/Sherborne High School, organized by The Education Cooperative
- Speaker** in the **Boston College's Women in Science High School Program**
- 2012 **Mentor** in **Professional Development Workshop** at UMass-Amherst
- Mentor** in **Speed Mentoring Session** and in **Meet the Professor Luncheon** of the *Society for Behavioral Neuroendocrinology*
- 2012-2015 **Mentoring High School student** Sofia Gilary, who participated in the Science Research Program at John Jay High School, New York, NY and was an intern in the Veenema lab
- 2011 **Mentor** in a **Workshop "Building a Career in Academia"** at UMass-Amherst
- 2011-2012 **Mentoring High School student** Kat Paradis, who participated in the Science Research Program at Saratoga Springs High School, New York, NY
-

**POSTER PRESENTATIONS AT INTERNATIONAL SCIENTIFIC MEETINGS**

Member of Dr. Veenema's lab: **1**=undergraduate student, **2**=graduate student, **3**=postdoc

- 2019 Bredewold R, Proano SB, Scazzero AM<sup>1</sup>, Meitzen J, Veenema AH. Regulation of social play behavior by oxytocin in the nucleus accumbens. *Annual Meeting of the Society for Neuroscience*, Chicago, IL
- Lee JDA<sup>2</sup>, Bredewold R, Veenema AH. Role of vasopressin in the ventral pallidum in regulating social play behavior in juvenile male and female rats. *Annual Meeting of the Society for Neuroscience*, Chicago, IL
- Reppucci CJ<sup>3</sup>, Chambers AQ<sup>1</sup>, Brown LA<sup>1</sup>, Washington CL, Veenema AH. The motivation to seek social contact versus food differs with age and between rats and mice. *International Brain Research Organization World Congress of Neuroscience*, Daegu, South Korea
- Yoest KE<sup>3</sup>, Bredewold R, Veenema AH. Sex differences in juvenile social recognition: role of oxytocin in the bed nucleus of the stria terminalis. *Annual Meeting of the Society for Neuroscience*, Chicago, IL
- Reppucci CJ<sup>3</sup>, Bredewold R, Chambers AQ<sup>1</sup>, Washington CL, Veenema AH. Involvement of the ventral tegmental area in socially rewarding behavior in juvenile rats. *Annual Meeting of the Society for Neuroscience*, San Diego, CA
- Bredewold R, Washington CL, Veenema AH. Vasopressin modulates glutamate signaling in the lateral septum of juvenile rats in sex-specific ways: Implications for the sex-specific regulation of social play behavior. *Biannual Meeting of the European Behavioural Pharmacology Society*, Braga, Portugal
- Bredewold R, Washington CL, Veenema AH. Vasopressin modulates glutamate signaling in the lateral septum of juvenile rats in sex-specific ways: Implications for the sex-specific regulation of social play behavior. *Annual Meeting of the Society Behavioral Neuroendocrinology*, Bloomington, IN
- Lee JDA<sup>2</sup>, Bredewold R, Veenema AH. Role of vasopressin in the ventral pallidum in regulating juvenile social behavior. *Annual Meeting of the Society for Behavioral Neuroendocrinology*, Bloomington, IN
- Yoest KE<sup>3</sup>, Bredewold R, Veenema AH. Sex differences in juvenile social recognition: role of oxytocin in the bed nucleus of the stria terminalis. *Annual Meeting of the Society for Behavioral Neuroendocrinology*, Bloomington, IN
- Bredewold R, Washington CL, Veenema AH. Vasopressin modulates glutamate signaling in the lateral septum of juvenile rats in sex-specific ways: Implications for the sex-specific regulation of social play behavior. *World Congress on Neurohypophysial Hormones*, Ein Gedi, Israel
- 2018 Bredewold R, Washington CL, Veenema AH. Sex differences in social reward regulation in juvenile rats: Focus on glutamate signaling in the lateral septum. *Annual Meeting of the Society for Neuroscience*, San Diego, CA
- Reppucci CJ<sup>3</sup>, Bredewold R, Posani SS<sup>1</sup>, Washington CL, Veenema AH. Activation of ventral tegmental area supports the expression of social play behavior in juvenile rats. *Annual Meeting of the Society for Neuroscience*, San Diego, CA
- Bredewold R, Washington CL, Veenema AH. Sex differences in social reward regulation in juvenile rats: Focus on glutamate signaling in the lateral septum. *Annual Meeting of the Society for Social Neuroscience*, San Diego, CA

Reppucci CJ<sup>3</sup>, Bredewold R, Posani SS<sup>1</sup>, Washington CL, Veenema AH. Activation of ventral tegmental area supports the expression of social play behavior in juvenile rats. *Annual Meeting of the Society for Social Neuroscience*, San Diego, CA

Bredewold R, Nascimento NF, Ro GS<sup>1</sup>, Cieslewski SE<sup>1</sup>, Reppucci CJ<sup>3</sup>, Veenema AH. Vasopressin and social play modulate lateral septum neurotransmitter release in sex-specific ways. *International Symposium on Regulatory Peptides*, Acapulco, Mexico

Bredewold R, Nascimento NF, Ro GS<sup>1</sup>, Cieslewski SE<sup>1</sup>, Reppucci CJ<sup>3</sup>, Veenema AH. Vasopressin and social play modulate lateral septum neurotransmitter release in sex-specific ways. *International Congress of Neuroendocrinology*, Toronto, Canada

Reppucci CJ<sup>3</sup>, Gergely CK<sup>1</sup>, Nascimento NF, Ro GS<sup>1</sup>, Bredewold R, Veenema AH. Recruitment of vasopressinergic and oxytonergic brain regions in response to social play. *International Congress of Neuroendocrinology*, Toronto, Canada

2017 Bredewold R, Schiavo J<sup>1</sup>, Verreij M<sup>1</sup>, Veenema AH. Vasopressin in the lateral septum alters the extracellular release of various neurotransmitters in male and female juvenile rats: Implications for sex-specific regulation of social play. *Annual Meeting of the Society for Neuroscience*, Washington, DC

Reppucci CJ<sup>3</sup>, Gergely CK<sup>1</sup>, Nascimento NF, Ro GS<sup>1</sup>, Bredewold R, Veenema AH. Recruitment of the ventral tegmental area and its afferent pathways during socially rewarding behavior in juvenile male and female rats. *Annual Meeting of the Society for Neuroscience*, Washington, DC

Smith CJW<sup>2</sup>, DiBenedictis BT<sup>3</sup>, Veenema AH. Vasopressin and oxytocin in the social behavior neural network: How do fiber projections and receptors compare? *Annual Meeting of the Society for Neuroscience*, Washington, DC

Smith JA<sup>3</sup>, Bredewold R, Reppucci CJ<sup>3</sup>, Veenema AH. Behavioral and neuroanatomical characterization of the vasopressin system in the bed nucleus of the stria terminalis reveals potential coordination of separate populations of vasopressin neurons in mediating social behavior. *Annual Meeting of the Society for Neuroscience*, Washington, DC

Bredewold R, Schiavo J<sup>1</sup>, Verreij M<sup>1</sup>, Veenema AH. Vasopressin in the lateral septum alters the extracellular release of various neurotransmitters in male and female juvenile rats: Implications for sex-specific regulation of social play. *Annual Meeting of the Society for Social Neuroscience*, Washington, DC

Reppucci CJ<sup>3</sup>, Gergely CK<sup>1</sup>, Nascimento NF, Ro GS<sup>1</sup>, Bredewold R, Veenema AH. Recruitment of the ventral tegmental area and its afferent pathways during socially rewarding behavior in juvenile male and female rats. *Annual Meeting of the Society for Social Neuroscience*, Washington, DC

Smith JA<sup>3</sup>, Bredewold R, Reppucci CJ<sup>3</sup>, Veenema AH. Behavioral and neuroanatomical characterization of the vasopressin system in the bed nucleus of the stria terminalis reveals potential coordination of separate populations of vasopressin neurons in mediating social behavior. *Annual Meeting of the Society for Social Neuroscience*, Washington, DC

Bredewold R, Nascimento NF, Veenema AH. Involvement of dopamine and noradrenaline in the sex-specific regulation of social play by vasopressin. *World Congress on Neurohypophysial Hormones*, Mangaratiba, Brazil

Reppucci CJ<sup>3\*</sup>, Gergely CK<sup>1</sup>, Veenema AH. Recruitment of vasopressin and oxytocin neurons in the paraventricular and supraoptic hypothalamic nuclei during social play in juvenile male and female rats. *World Congress on Neurohypophysial Hormones*, Mangaratiba, Brazil **\*Travel Award**

Smith JA<sup>3\*</sup>, Bredewold R, Reppucci CJ<sup>3</sup>, Veenema AH. Behavioral and neuroanatomical characterization of the vasopressin system in the bed nucleus of the stria terminalis reveals potential coordination of separate populations of vasopressin neurons in mediating social behavior. *World Congress on Neurohypophysial Hormones*, Mangaratiba, Brazil \***Travel Award**

Bredewold R, Nascimento NF, Veenema AH. Involvement of dopamine and noradrenaline in the sex-specific regulation of social play by vasopressin. *Annual Meeting of the International Behavioral Neuroscience Society*, Hiroshima, Japan

Bredewold R, Nascimento NF, Veenema AH. Involvement of dopamine and noradrenaline in the sex-specific regulation of social play by vasopressin. *Michigan Chapter of the Society for Neuroscience Meeting*, Ann Arbor, MI

Reppucci CJ<sup>3</sup>, Gergely CK<sup>1</sup>, Nascimento NF, Ro GS<sup>1</sup>, Bredewold R, Veenema AH. A novel role for orexin in regulating socially rewarding behavior in juvenile rats. *Michigan Chapter of the Society for Neuroscience Meeting*, Ann Arbor, MI

2016 Bredewold R, Nascimento NF, Veenema AH. Involvement of dopamine and noradrenaline in the sex-specific regulation of social play by vasopressin. *Annual Meeting of the Society for Neuroscience*, San Diego, CA

DiBenedictis BT<sup>3</sup>, Smith CJW<sup>2</sup>, Nussbaum ER<sup>1</sup>, Cheung HK<sup>1</sup>, Veenema AH. Involvement of ventral pallidal vasopressin in the sex-specific regulation of opposite-sex preference in rats. *Annual Meeting of the Society for Neuroscience*, San Diego, CA

Dumais KM<sup>2</sup>, Kulkarni P, Ferris CF, Veenema AH. Sex differences in neural activation following different routes of oxytocin administration in awake adult rats. *Annual Meeting of the Society for Neuroscience*, San Diego, CA

Nascimento NF, Ro GS<sup>1</sup>, Reppucci CJ<sup>3</sup>, Bredewold R, Veenema AH. Lateral Septum Vasopressin System Interacts With Nucleus Accumbens and Prefrontal Cortex to Regulate Social Play in Sex-Specific Ways. *Annual Meeting of the Society for Neuroscience*, San Diego, CA

Smith CJW<sup>2</sup>, Ratnaseelan A<sup>1</sup>, Li S<sup>1</sup>, Veenema AH. Involvement of mu opioid receptors in the regulation of juvenile social novelty-seeking behavior: Brain region-specific effects and modulation by social separation. *Annual Meeting of the Society for Neuroscience*, San Diego, CA

Reppucci CJ<sup>3</sup>, Gergely CK<sup>1</sup>, Nascimento NF, Ro GS<sup>1</sup>, Bredewold R, Veenema AH. Recruitment of orexin/hypocretin neurons during socially rewarding behavior in juvenile male and female rats. *Annual Meeting of the Society for Neuroscience*, San Diego, CA

Worley NB<sup>2</sup>, Dumais KM<sup>2</sup>, Yuan JC<sup>1</sup>, Newman LE<sup>1</sup>, Alonso AG<sup>1</sup>, Veenema AH. Involvement of androgen, but not estrogen, receptors in the masculinization of the oxytocin receptor in the bed nucleus of the stria terminalis. *Annual Meeting of the Society for Neuroscience*, San Diego, CA

Bredewold R, Nascimento NF, Veenema AH. Involvement of dopamine and noradrenaline in the sex-specific regulation of social play by vasopressin. *Annual Meeting of the Society for Social Neuroscience*, San Diego, CA

DiBenedictis BT<sup>3</sup>, Smith CJW<sup>2</sup>, Nussbaum ER<sup>1</sup>, Cheung HK<sup>1</sup>, Veenema AH. Involvement of ventral pallidal vasopressin in the sex-specific regulation of opposite-sex preference in rats. *Annual Meeting of the Society for Social Neuroscience*, San Diego, CA

Dumais KM<sup>2</sup>, Kulkarni P, Ferris CF, Veenema AH. Sex differences in neural activation following different routes of oxytocin administration in awake adult rats. *Annual Meeting of the Society for Social Neuroscience*, San Diego, CA

Nascimento NF, Ro GS<sup>1</sup>, Reppucci CJ<sup>3</sup>, Bredewold R, Veenema AH. Lateral Septum Vasopressin System Interacts With Nucleus Accumbens and Prefrontal Cortex to Regulate Social Play in Sex-Specific Ways. *Annual Meeting of the Society for Social Neuroscience, San Diego, CA*

Smith CJW<sup>2</sup>, Ratnaseelan A<sup>1</sup>, Li S<sup>1</sup>, Veenema AH. Involvement of mu opioid receptors in the regulation of juvenile social novelty-seeking behavior: Brain region-specific effects and modulation by social separation. *Annual Meeting of the Society for Social Neuroscience, San Diego, CA*

Reppucci CJ<sup>3</sup>, Gergely CK<sup>1</sup>, Nascimento NF, Ro GS<sup>1</sup>, Bredewold R, Veenema AH. Recruitment of orexin/hypocretin neurons during socially rewarding behavior in juvenile male and female rats. *Annual Meeting of the Society for Social Neuroscience, San Diego, CA*

Worley NB<sup>2</sup>, Dumais KM<sup>2</sup>, Yuan JC<sup>1</sup>, Newman LE<sup>1</sup>, Alonso AG<sup>1</sup>, Veenema AH. Involvement of androgen, but not estrogen, receptors in the masculinization of the oxytocin receptor in the bed nucleus of the stria terminalis. *Annual Meeting of the Society for Social Neuroscience, San Diego, CA*

Bredewold R, Nascimento N, Veenema AH. Involvement of dopamine and noradrenaline in the sex-specific regulation of social play by vasopressin. *Annual Meeting of the Society for Behavioral Neuroendocrinology, Montreal, Canada*

DiBenedictis BT<sup>3</sup>, Smith CJW<sup>2</sup>, Nussbaum ER<sup>1</sup>, Cheung HK<sup>1</sup>, Veenema AH. Involvement of ventral pallidal vasopressin in the sex-specific regulation of opposite-sex preference in rats. *Annual Meeting of the Society for Behavioral Neuroendocrinology, Montreal, Canada*

Dumais KM<sup>2</sup>, Kulkarni P, Ferris CF, Veenema AH. Sex differences in neural activation following oxytocin administration in awake rats. *Annual Meeting of the Society for Behavioral Neuroendocrinology, Montreal, Canada*

Smith CJW<sup>2</sup>, Ratnaseelan A<sup>1</sup>, Li S<sup>1</sup>, Veenema AH. Involvement of mu opioid receptors in the regulation of juvenile social novelty-seeking behavior: Brain region-specific effects and modulation by social separation. *Annual Meeting of the Society for Behavioral Neuroendocrinology, Montreal, Canada*

Reppucci CJ<sup>3</sup>, Gergely CK<sup>1</sup>, Nascimento NF, Ro GS<sup>1</sup>, Bredewold R, Veenema AH. Recruitment of orexin/hypocretin neurons during socially rewarding behavior in juvenile male and female rats. *Annual Meeting of the Society for Behavioral Neuroendocrinology, Montreal, Canada*

Worley NB<sup>1</sup>, Dumais KM<sup>1</sup>, Yuan JC<sup>2</sup>, Newman LE<sup>2</sup>, Alonso AG<sup>2</sup>, Veenema AH. Involvement of androgen, but not estrogen, receptors in the masculinization of the oxytocin receptor in the bed nucleus of the stria terminalis. *Annual Meeting of the Society for Behavioral Neuroendocrinology, Montreal, Canada*

DiBenedictis BT<sup>3</sup>, Nussbaum ER<sup>2</sup>, Cheung HK<sup>2</sup>, Veenema AH. Age and sex differences in forebrain distribution of vasopressin and oxytocin fibers in the rat. *Annual Meeting of the Organization for the Study of Sex Differences, Philadelphia, PA*

Dumais KM<sup>1</sup>, Kulkarni P, Ferris CF, Veenema AH. Sex differences in neural activation following oxytocin administration in awake rats. *Annual Meeting of the Organization for the Study of Sex Differences, Philadelphia, PA*

Smith CJW<sup>1</sup>, Ratnaseelan A<sup>2</sup>, Poehlmann ML<sup>2</sup>, Veenema AH. Pre-pubertal emergence of sex differences in oxytocin and vasopressin V1a receptor binding in the rat brain. *Annual Meeting of the Organization for the Study of Sex Differences, Philadelphia, PA*

- Worley NB<sup>1</sup>, Dumais KM<sup>1</sup>, Yuan JC<sup>2</sup>, Newman LE<sup>2</sup>, Alonso AG<sup>2</sup>, Veenema AH. Molecular mechanisms underlying sex differences in oxytocin system. *Annual Meeting of the Organization for the Study of Sex Differences*, Philadelphia, PA
- Bredewold R, Schiavo J<sup>2</sup>, Verreij M<sup>2</sup>, Ro G<sup>2</sup>, Veenema AH. Vasopressin regulates social play in sex-specific ways through glutamate modulation in the lateral septum. *Biannual Meeting of the FENS Forum of Neuroscience*, Copenhagen, Denmark
- Nussbaum ER<sup>2</sup>, Cheung HK<sup>2</sup>, DiBenedictis BT<sup>3</sup>, Veenema AH. Age and sex differences in forebrain distribution of vasopressin and oxytocin fibers in the rat. Annual NEURON conference, Quinnipiac University, Hamden, CT
- 2015 Bredewold R, Schiavo J<sup>2</sup>, Verreij M<sup>2</sup>, Ro G<sup>2</sup>, Veenema AH. Vasopressin regulates social play in sex-specific ways through glutamate modulation in the lateral septum. *Annual Meeting of the Society for Neuroscience*, Chicago, IL
- DiBenedictis BT<sup>3</sup>, Bredewold R, Veenema AH. Dynamic vasopressin release in the lateral septum during social recognition in adult and juvenile male and female rats. *Annual Meeting of the Society for Neuroscience*, Chicago, IL
- Dumais KM<sup>1</sup>, Alonso AG<sup>2</sup>, Gillespie TC<sup>2</sup>, Cho D<sup>2</sup>, Bredewold R, Veenema AH. Oxytocin in the bed nucleus of the stria terminalis and central amygdala regulates social behavior in sex-specific ways in rats. *Annual Meeting of the Society for Neuroscience*, Chicago, IL
- Smith CJW<sup>1</sup>, Ratnaseelan A<sup>2</sup>, Poehlmann ML<sup>2</sup>, Veenema AH. Sub region-specific distribution of  $\mu$ -opioid receptors in the striatum of juvenile rats: Implications for social novelty preference. *Annual Meeting of the Society for Neuroscience*, Chicago, IL
- Veenema AH, Bredewold R, Varela J, Christianson JP. Vasopressin modulates lateral septum neuronal activity in sex-specific ways in juvenile rats. *Annual Meeting of the Society for Neuroscience*, Chicago, IL
- Worley NB<sup>1</sup>, Dumais KM<sup>1</sup>, Newman LE<sup>2</sup>, Alonso AG<sup>2</sup>, Veenema AH. Molecular mechanisms underlying sex differences in oxytocin receptors in the rat brain. *Annual Meeting of the Society for Neuroscience*, Chicago, IL
- Bredewold R, Schiavo J<sup>2</sup>, Verreij M<sup>2</sup>, Ro G<sup>2</sup>, Veenema AH. Vasopressin regulates social play in sex-specific ways through glutamate modulation in the lateral septum. *Annual Meeting of the Society for Social Neuroscience*, Chicago, IL
- DiBenedictis BT<sup>3</sup>, Bredewold R, Veenema AH. Dynamic vasopressin release in the lateral septum during social recognition in adult and juvenile male and female rats. *Annual Meeting of the Society for Social Neuroscience*, Chicago, IL
- Dumais KM<sup>1</sup>, Alonso AG<sup>2</sup>, Gillespie TC<sup>2</sup>, Cho D<sup>2</sup>, Bredewold R, Veenema AH. Oxytocin in the bed nucleus of the stria terminalis and central amygdala regulates social behavior in sex-specific ways in rats. *Annual Meeting of the Society for Social Neuroscience*, Chicago, IL
- Smith CJW<sup>1</sup>, Ratnaseelan A<sup>2</sup>, Poehlmann ML<sup>2</sup>, Veenema AH. Sub region-specific distribution of  $\mu$ -opioid receptors in the striatum of juvenile rats: Implications for social novelty preference. *Annual Meeting of the Society for Social Neuroscience*, Chicago, IL
- Veenema AH, Bredewold R, Varela J, Christianson JP. Vasopressin modulates lateral septum neuronal activity in sex-specific ways in juvenile rats. *Annual Meeting of the Society for Social Neuroscience*, Chicago, IL



Worley NB<sup>1</sup>, Dumais KM<sup>1</sup>, Newman LE<sup>2</sup>, Alonso AG<sup>2</sup>, Veenema AH. Molecular mechanisms underlying sex differences in oxytocin receptors in the rat brain. *Annual Meeting of the Society for Social Neuroscience*, Chicago, IL

Bredewold R, Schiavo J<sup>2</sup>, Verreij M<sup>2</sup>, Veenema AH. Vasopressin in the lateral septum modulates the release of glutamate, but not GABA, differently in male and female juvenile rats. *Annual Meeting of the Society for Behavioral Neuroendocrinology*, Pacific Grove, CA

DiBenedictis BT<sup>3</sup>, Bredewold R, Veenema AH. Dynamic vasopressin release in the lateral septum during social recognition in adult and juvenile male and female rats. *Annual Meeting of the Society for Behavioral Neuroendocrinology*, Pacific Grove, CA

Dumais KM<sup>1</sup>, Alonso AG<sup>2</sup>, Bredewold R, Veenema AH. Sex-specific regulation of social recognition by oxytocin in the bed nucleus of the stria terminalis. *Annual Meeting of the Society for Behavioral Neuroendocrinology*, Pacific Grove, CA

Smith CJW<sup>1</sup>, Poehlmann ML<sup>2</sup>, Li S<sup>2</sup>, Bredewold R, Veenema AH. Age differences in oxytocin and vasopressin V1a receptor binding in the rat brain: Implications for juvenile social behavior. *Annual Meeting of the Society for Behavioral Neuroendocrinology*, Pacific Grove, CA

Worley NB<sup>1</sup>, Dumais KM<sup>1</sup>, Newman LE<sup>2</sup>, Veenema AH. Molecular mechanisms underlying sex differences in oxytocin receptors in the rat brain. *Annual Meeting of the Society for Behavioral Neuroendocrinology*, Pacific Grove, CA

2014 Bredewold R, Schiavo J<sup>2</sup>, Verreij M<sup>2</sup>, Veenema AH. Mechanisms underlying sex-specific regulation of social play by vasopressin: An in vivo microdialysis study. *Annual Meeting of the Society for Neuroscience*, Washington, DC

Dumais KM<sup>1</sup>, Kulkarni P, Ferris CF, Veenema AH. Oxytocin administration induces sex-specific alterations in brain activation in awake rodents using fMRI. *Annual Meeting of the Society for Neuroscience*, Washington, DC

Smith CJW<sup>1</sup>, Poehlmann ML<sup>2</sup>, Wilkins KB<sup>2</sup>, Bredewold R, Veenema AH. Age differences in the brain oxytocin system: implications for juvenile social motivation. *Annual Meeting of the Society for Neuroscience*, Washington, DC

Worley NB<sup>1</sup>, Newman LE<sup>2</sup>, Veenema AH. Mechanisms underlying sex differences in the brain oxytocin system. *Annual Meeting of the Society for Neuroscience*, Washington, DC

Bredewold R, Schiavo J<sup>2</sup>, Verreij M<sup>2</sup>, Veenema AH. Mechanisms underlying sex-specific regulation of social play by vasopressin: An in vivo microdialysis study. *Annual Meeting of the Society for Social Neuroscience*, Washington, DC

Dumais KM<sup>1</sup>, Kulkarni P, Ferris CF, Veenema AH. Oxytocin administration induces sex-specific alterations in brain activation in awake rodents using fMRI. *Annual Meeting of the Society for Social Neuroscience*, Washington, DC

Smith CJW<sup>1</sup>, Poehlmann ML<sup>2</sup>, Wilkins KB<sup>2</sup>, Bredewold R, Veenema AH. Age differences in the brain oxytocin system: implications for juvenile social motivation. *Annual Meeting of the Society for Social Neuroscience*, Washington, DC

Worley NB<sup>1</sup>, Newman LE<sup>2</sup>, Veenema AH. Mechanisms underlying sex differences in the brain oxytocin system. *Annual Meeting of the Society for Social Neuroscience*, Washington, DC

Bredewold R, Schiavo J<sup>2</sup>, Verreij M<sup>2</sup>, Veenema AH. Involvement of GABA and glutamate in the sex-specific regulation of social play by vasopressin. *Annual Meeting of the International Society of Psychoneuroendocrinology*, Montreal, Canada

Dumais KM<sup>1</sup>, Alonso AG<sup>2</sup>, Immormino MA<sup>2</sup>, Bredewold R, Veenema AH. The sexually dimorphic oxytocin system in the rat brain: Implications for sex-specific regulation of social behavior. *Biannual Meeting of the FENS Forum of Neuroscience*, Milan, Italy

Smith CJ<sup>2</sup>, Wilkins KB<sup>2</sup>, Mogavero JN<sup>2</sup>, Veenema AH. Social isolation impairs while oxytocin facilitates social novelty-seeking behavior in the juvenile rat. *Biannual Meeting of the FENS Forum of Neuroscience*, Milan, Italy

Wilkins KB<sup>2</sup>, Smith CJ<sup>2</sup>, Veenema AH. Social isolation impairs novelty preference, while oxytocin shows a region-specific facilitative role. *Annual Meeting of the Eastern Psychological Association*, Boston, MA

Alonso AG<sup>2</sup>, Dumais KM<sup>1</sup>, Veenema AH. Oxytocin in the bed nucleus of the stria terminalis modulates sexually dimorphic social recognition behavior in rats. *Annual NEURON conference*, Hamden, CT

Smith CJ<sup>2</sup>, Wilkins KB<sup>2</sup>, Mogavero JN<sup>2</sup>, Veenema AH. Social isolation impairs while oxytocin facilitates social novelty-seeking behavior in the juvenile rat. *Annual NEURON conference*, Hamden, CT

2013 Dumais KM<sup>1</sup>, Alonso AG<sup>2</sup>, Immormino MA<sup>2</sup>, Karakula SL<sup>2</sup>, Mayer T<sup>2</sup>, Bredewold R, Veenema AH. The role of the amygdala in sex-specific regulation of social interest in rats. *Annual Symposium of the Center for Neuroendocrine Studies*, Amherst, MA

Smith CJ<sup>1</sup>, Wilkins KB<sup>2</sup>, Mogavero JN<sup>2</sup>, Veenema AH. Social isolation impairs while oxytocin facilitates social novelty-seeking behavior in the juvenile rat. *Annual Symposium of the Center for Neuroendocrine Studies*, Amherst, MA

Alonso AG<sup>2</sup>, Dumais KM<sup>1</sup>, Veenema AH. Oxytocin in the bed nucleus of the stria terminalis modulates sexually dimorphic social recognition behavior in rats. *Annual Symposium of the Center for Neuroendocrine Studies*, Amherst, MA

Schiavo J<sup>2</sup>, Bredewold R, Veenema AH. Modulation of social play behavior through interactions of vasopressin and GABA in the lateral septum. *Annual Symposium of the Center for Neuroendocrine Studies*, Amherst, MA

Wu C<sup>2</sup>, Bredewold R, Veenema AH. Social play behavior in rats: The role of oxytocin in the nucleus accumbens. *Annual Symposium of the Center for Neuroendocrine Studies*, Amherst, MA

Dumais KM<sup>1</sup>, Alonso A<sup>2</sup>, Mayer T<sup>2</sup>, Bredewold R, Veenema AH. Sex differences in oxytocin receptor binding in the bed nucleus of the stria terminalis and amygdala: Implications for differential expression and regulation of social behavior. *Annual Meeting of the Society for Neuroscience*, San Diego, CA

Smith CJ<sup>1</sup>, Mogavero JN<sup>2</sup>, Wilkins KB<sup>2</sup>, Reardon KI<sup>2</sup>, Bredewold R, Veenema AH. Role of opioids, oxytocin, and stress in modulating social novelty-seeking behavior in the juvenile rat. *Annual Meeting of the Society for Neuroscience*, San Diego, CA

Bredewold R, Smith CJ<sup>1</sup>, Veenema AH. Sex-specific regulation of social play by vasopressin and oxytocin depends on social context. *Annual Meeting of the Society for Neuroscience*, San Diego, CA

Dumais KM<sup>1</sup>, Alonso A<sup>2</sup>, Mayer T<sup>2</sup>, Bredewold R, Veenema AH. Sex differences in oxytocin receptor binding in the bed nucleus of the stria terminalis and amygdala: Implications for differential expression and regulation of social behavior. *Annual Meeting of the Society for Social Neuroscience*, San Diego, CA

Smith CJ<sup>1</sup>, Mogavero JN<sup>2</sup>, Wilkins KB<sup>2</sup>, Reardon KI<sup>2</sup>, Bredewold R, Veenema AH. Role of opioids, oxytocin, and stress in modulating social novelty-seeking behavior in the juvenile rat. *Annual Meeting of the Society for Social Neuroscience*, San Diego, CA

Bredewold R, Smith CJ<sup>1</sup>, Veenema AH. Sex-specific regulation of social play by vasopressin and oxytocin depends on social context. *Annual Meeting of the Society for Social Neuroscience*, San Diego, CA

Bredewold R, Smith CJ<sup>1</sup>, Veenema AH. Sex-specific regulation of social play by vasopressin and oxytocin depends on social context. *45th European Brain and Behavior Society Meeting*, Munich, Germany

Dumais KM<sup>1</sup>, Alonso A<sup>2</sup>, Mayer T<sup>2</sup>, Bredewold R, Veenema AH. Sex differences in oxytocin receptor density in the bed nucleus of the stria terminalis: Implications for differential regulation of social recognition. *Annual Meeting of the Society for Behavioral Neuroendocrinology*, Atlanta, GA

Smith CJ<sup>1</sup>, Mogavero JN<sup>2</sup>, Bredewold R, Veenema AH. A brief period of social isolation abolishes social novelty-seeking behavior in the juvenile rat. *Annual Meeting of the Society for Behavioral Neuroendocrinology*, Atlanta, GA

Bredewold R, Smith CJ<sup>1</sup>, Veenema AH. Sex-specific regulation of social play by vasopressin and oxytocin depends on social context. *Annual Meeting of the Society for Behavioral Neuroendocrinology*, Atlanta, GA

Dumais KM<sup>1</sup>, Mayer T<sup>2</sup>, Bredewold R, Veenema AH. Sex differences in social interest correlate with oxytocin receptor densities in subregions of the amygdala. *Annual NEURON conference*, Hamden, CT

Smith CJ<sup>1</sup>, Mogavero JN<sup>2</sup>, Barnard EM<sup>2</sup>, Bredewold R, Veenema AH. Social novelty -seeking behavior in the juvenile rat: roles of sex, anxiety, and neuropeptides. *Annual NEURON conference*, Hamden, CT

2012 Dumais KM<sup>1\*</sup>, Mayer T<sup>2</sup>, Bredewold R, Veenema AH. Sex differences in social interest correlate with oxytocin receptor densities in subregions of the amygdala. *Annual Symposium of the Center for Neuroendocrine Studies*, Amherst, MA **\*Poster Award**

Smith CJ<sup>1</sup>, Mogavero JN<sup>2</sup>, Barnard EM<sup>2</sup>, Bredewold R, Veenema AH. Social novelty -seeking behavior in the juvenile rat: roles of sex, anxiety, and neuropeptides. *Annual Symposium of the Center for Neuroendocrine Studies*, Amherst, MA

Bredewold R, Smith CJ<sup>1</sup>, Veenema AH. Neural circuitry of social play: Distinct modes of interplay between septal vasopressin and GABA in males and females. *Annual Meeting of the Society for Neuroscience*, New Orleans, LA

Bredewold R\*, Smith CJ<sup>1</sup>, Veenema AH. Neural circuitry of social play: Distinct modes of interplay between septal vasopressin and GABA in males and females. *Annual Meeting of the Society for Social Neuroscience*, New Orleans, LA **\*Travel Award**

Bredewold R, Smith CJ<sup>1</sup>, Veenema AH. Neural circuitry of social play: Involvement of septal vasopressin and GABA. *Annual Meeting of the Society for Behavioral Neuroendocrinology*, Madison, WI

Dumais KM<sup>1</sup>, Mayer T<sup>2</sup>, Bredewold R, Veenema AH. Sex differences in social interest correlate with oxytocin receptor densities in subregions of the amygdala. *Annual Meeting of the Society for Behavioral Neuroendocrinology*, Madison, WI

Meng Q<sup>1</sup>, Bredewold R, Smith CJ<sup>1</sup>, Veenema AH. Adverse early life peer interactions alter anxiety and play-fighting behaviors. *Annual Meeting of the Society for Behavioral Neuroendocrinology*, Madison, WI

Smith CJ<sup>1</sup>, Mogavero JN<sup>2</sup>, Barnard EM<sup>2</sup>, Bredewold R, Veenema AH. Social novelty -seeking behavior in the juvenile rat: roles of sex, anxiety, and neuropeptides. *Annual Meeting of the Society for Behavioral Neuroendocrinology*, Madison, WI

Bredewold R, Smith CJ, Veenema AH. Neural circuitry of social play: Involvement of septal vasopressin and GABA. *Annual Meeting of the International Behavioural and Neural Genetics Society*, Boulder, CO

2011 Bredewold R, Smith CJ<sup>1</sup>, Veenema AH. Septal vasopressin regulates play-fighting in male and female juvenile rats: Sex- and context-specific effects. *Annual Meeting of the Society for Neuroscience*, Washington, DC

Bredewold R, Smith CJ<sup>1</sup>, Veenema AH. Septal vasopressin regulates play-fighting in male and female juvenile rats: Sex- and context-specific effects. *Meeting of the Society for Social Neuroscience*, Washington, DC

Dumais KM<sup>1\*</sup>, Mayer TE<sup>2</sup>, Smith CJ<sup>1</sup>, Bredewold R, Veenema AH. From anti-social to pro-social: Do sex steroids and oxytocin play a role? *Workshop on the Biology of Pro-Social Behavior*, Emory University, Atlanta, GA **\*Travel Award**

Smith CJ<sup>1\*</sup>, Bredewold R, Veenema AH. Septal vasopressin regulates play-fighting in male and female juvenile rats: Sex- and context-specific effects. *Workshop on the Biology of Pro-Social Behavior*, Emory University, Atlanta, GA **\*Travel Award**

Meng Q<sup>1</sup>, Bredewold R, Smith CJ<sup>1</sup>, Veenema AH. Effects of Post-weaning Adverse Peer Interactions on Emotional and Social behaviors. *Workshop on the Biology of Pro-Social Behavior*, Emory University, Atlanta, GA

Dumais KM<sup>1</sup>, Mayer TE<sup>2</sup>, Smith CJ<sup>1</sup>, Bredewold R, Veenema AH. From anti-social to pro-social: Do sex steroids and oxytocin play a role? *9th World Congress on Neurohypophysial Hormones*, Boston, MA

Bredewold R, Smith CJ<sup>1</sup>, Veenema AH. Septal vasopressin regulates play-fighting in male and female juvenile rats: Sex- and context-specific effects. *9th World Congress on Neurohypophysial Hormones*, Boston, MA