

**Brian C. Trainor**

Department of Psychology and Center for Neuroscience  
University of California at Davis  
Davis, CA 95616  
Citizenship: U.S.A.

**Education and Post-doctoral Training**

Ohio State University. Department of Psychology. Post-doctoral Fellow. 2004-2007  
Harvard University. Bauer Center for Genomics Research. Post-doctoral Researcher. 2003-2004  
University of Wisconsin at Madison. Ph.D. Psychology. 1998-2003  
University of Nebraska at Lincoln. M.S. Biology. May 1996-1998  
University of Texas at Austin, B.S. Biology. 1992-1996

**Professional Positions**

2016-present Professor, Department of Psychology, University of California Davis  
2011-2016 Associate Professor, Department of Psychology, University of California Davis  
2007-2011 Assistant Professor, Department of Psychology, University of California Davis  
2004-2007 Post-doctoral Fellow with Dr. Randy Nelson, Ohio State University  
2003-2004 Post-doctoral Researcher with Dr. Hans Hofmann, Harvard University  
1998-2003 Pre-doctoral Fellow with Dr. Catherine Marler, University of Wisconsin Madison  
1996-1998 Research Assistant with Dr. Alexandra Basolo, University of Nebraska Lincoln

**Affiliations**

2011-present Affiliate, UC Davis Center for Neuroscience  
2008-present Member, Neuroscience Graduate Group  
2008-present Member, Animal Behavior Graduate Group  
2008-present Member, Human Development Graduate Group

**Awards and Fellowships**

2010 Frank Beach Young Investigator Award in Behavioral Neuroendocrinology  
2009 UC Davis Hellman Fellow  
2006 NIH Kirschstein National Research Service Award, Individual Postdoctoral Fellowship: "Estrogen receptors, photoperiod, and aggression"  
2004 Bursary for the Symposium on Molecular Mechanisms Influencing Aggressive Behaviours  
2003 Young Investigator Symposium at the Workshop on Steroid Hormones and Brain Function  
2002 Best Student Paper for Division of Animal Behavior in the Society for Integrative and Comparative Biology (SICB)  
2002 UW Graduate School Vilas Travel Award  
2001 NIH Kirschstein National Research Service Award, Individual Predoctoral Fellowship "Aromatase regulation of paternal behavior and aggression"  
2001 SICB Grant-in-Aid: The effects of testosterone and aromatase on aggression across multiple Encounters  
2000 UW Department of Psychology Menzies Research Award  
1999 Sigma Xi Grant-in-Aid: The steroid control of paternal care.  
1996 Sigma Xi Grant-in-Aid: The importance of different components of the male sword in female choice (*Xiphophorus helleri*).

## Professional Service

### Editorial and Reviewing Activities

2018	Ad-Hoc member, F02A (NRSA fellowships, March and June)
2017	Ad-Hoc member, NBM (October)
2016	Ad-Hoc member, NIMH Fellowship Review Panel (Feb.), NMB (June)
2015	Ad-Hoc member, NIH IFCN-Z and NMB (June and Oct.) Panels
2014	Ad-Hoc member, F02A (NRSA fellowships)
2013	NIH Special Emphasis Panel (ZMH1 ERB-L-02, K awards)
2011-present	<i>Hormones and Behavior</i> Editorial Board Member
2012	NIH Special Emphasis Panel (ZMH1 ERB-L-07, R21 and R01 Supplements)

Ad Hoc Reviewer for: *Aggressive Behavior, Behavioral Ecology and Sociobiology, Behavioral Genetics, Biological Psychiatry, Biological Psychology, Brain Research, Cell, Cerebral Cortex, Ethology, European J. Neurosci., Frontiers in Neuroendocrinology, Genes, Brain, and Behavior, J. Neurosci., Neuroscience, Neuron, Neuropharmacology, Pharmacol. Biochem. Behav., Physiology and Behavior, Proc. R. Soc. Lond. B., Psychoneuroendocrinol., PLoS ONE, Science.*

### Other Professional and University Service

2018-present	Member, Institutional Biosafety Committee
2017-present	Secretary, Society for Behavioral Neuroendocrinology
2014-2017	Member, Academic Senate Committee on Research
2011-2017	Biological Psychology Area Head/Psychology Department Executive Committee
2017	Member, Society for Behavioral Neuroendocrinology Annual Meeting Program Committee
2016	Chair, Society for Behavioral Neuroendocrinology Annual Meeting Program Committee
2012-2016	Dean's Advisory Committee
2015	Animal Behavior Graduate Group Admissions Committee
2014-2015	Chair, Society for Behavioral Neuroendocrinology Membership Committee
2012, 2016	Hellman Fellows Panel
2012	Provosts Undergraduate Fellowship Committee
2010	SBN Poster Judge
2008-2011	Student Petitions, Standing Committee of the College of Letters and Science

## Research Support

### Active

2014-2018	"Kappa opioid receptor and social stress in males and females" Role: PI National Institute of Mental Health (R01 MH103322); \$1,000,000 direct costs
2016-2018	"Kappa opioid receptor and social stress in males and females" <i>Supplement to Promote Diversity</i> Role: PI National Institute of Mental Health (R01 MH103322-S1); \$96,974 direct costs

### Completed

2013-2014	"Sex differences in mesolimbic dopamine responses to social stress" Role: PI National Institute of Mental Health (R01 MH097714-01A1); \$250,000 direct costs
2013-2014	"MicroRNAs, stress, and the neurotrophin hypothesis of depression" Role: PI

Academic Senate Faculty Research Grant; \$20,555 direct costs

- 2010-2013 “*Environmental regulation of estrogen dependent aggression*”  
Role: PI  
National Institute of Mental Health (R01 MH85069-04); \$900,000 direct costs
- 2010-2012 “*Sex differences and social stress*”  
Role: PI  
National Institute of Mental Health (R21 MH090392); \$275,000 direct costs
- 2009-2012 “*Impact of chronic stress and behavioral coping on mammary tumor development, regression and recurrence in a mouse model of ErbB2-positive breast cancer*”  
Role: Co-PI with C. Sweeney  
Department of Defense IDEA Award; \$375,000 direct costs
- 2011-2012 “*Environmental regulation of estrogen dependent aggression/Supplement to Promote Diversity*”  
Role: PI  
National Institute of Mental Health (R01 MH85069-S2); \$72,220 direct costs
- 2010 “*Environmental regulation of estrogen dependent aggression/Supplement to Promote Diversity*”  
Role: PI  
National Institute of Mental Health (R01 MH85069-S2); \$6,000 direct costs
- 2009-2010 “*Sex differences in depression related behavior*”  
Role: PI  
University of California Davis Academic Senate; \$20,569 direct costs
- 2009-2010 “*Impact of chronic stress and behavioral coping on mammary tumor development in a mouse model of ErbB2-positive breast cancer*”  
Role: PI  
University of California Cancer Research Coordinating Committee; \$15,645 direct costs
- 2009 “*Effect of stress in a mouse model of ErbB2-positive breast cancer*”  
Role: PI  
American Cancer Society Institutional Research Grant; \$30,000 direct costs
- 2008-2009 “*Effects of melatonin on genomic and nongenomic estrogen action*”  
Role: PI  
American Cancer Society Institutional Research Grant; \$30,000 direct costs

## **Publications**

Web of Science h-index: 27, [Google Scholar](#) h-index: 33

## Journal Articles

72. Williams, A. V., Laman-Maharg, A., Armstrong, C. V., Ramos-Maciel, S., Minie, V. A., Trainor, B. C. 2018. Acute inhibition of kappa opioid receptors before but not after social defeat blocks anhedonia and social avoidance in female California mice. *Progress in Neuropsychopharmacology and Biological Psychiatry*, **86**, 166-174.
71. Lam, J. C. W., Shields, G. S., Trainor, B. C., Slavich, G. M. & Yonelinas, A. P. 2018. Greater lifetime stress exposure predicts blunted cortisol but heightened DHEA reactivity to acute stress.

### *Stress and Health.*

70. Williams, A. V. & Trainor, B. C. 2018. The impact of sex as a biological variable in the search for novel antidepressants. *Frontiers in Neuroendocrinology*, in press.
69. Wright, E. C., Parks, T. V., Alexander, J., Supra, R. & Trainor, B. C. 2018. Activation of kappa opioid receptors in the dorsal raphe have sex dependent effects on social behavior in California mice. *Behavioural Brain Research*, **351**, 83-92.
68. Laman-Maharg, A., Williams, A. V., Zufelt, M. D., Minie, V. A., Copeland, T., Ramos-Maciel, S., Hao, R., Sanchez, E. O., Silverman, J. L., Leigh, A., Snyder, R., Carrol, F. I., Fennell, T. R., Trainor, B. C. 2018. Sex differences in the effects of a kappa opioid receptor antagonists in the forced swim test. *Front. Pharmacol.***9**:93.
67. Duque-Wilckens, N., Steinman, M. Q., Busnelli, M, Chini, B., Yokoyama, S., Pham, M., Laredo, S. A., Hao, R., Perkeybile, A. M., Minie, V. A., Tan, P. B., Bales, K. L. and Trainor, B. C. 2018. Oxytocin receptors in the anteromedial bed nucleus of the stria terminalis promote stress-induced social avoidance in females. *Biological Psychiatry*, **83**, 203-213. (Priority communication).
66. Kowalczyk, A. S., Davila, R. F., Trainor, B. C. 2018. Effects of social defeat on paternal behavior and pair bonding behavior in male California mice (*Peromyscus californicus*). *Hormones and Behavior*. **98**: 88-95.
65. Laman-Maharg, A., Copeland, T. Odroñez Sanchez, E, Campi, K. L., Trainor, B. C. 2017. The long-term effects of stress and kappa opioid receptor activation on conditioned place aversion in male and female California mice. *Behavioural Brain Research*, **332**, 299-307.
64. Wright, E. C., Johnson, S. A., Hao, R., Kowalczyk, A. S., Greenberg, G. D., Odroñez Sanchez, E, Laman-Maharg, A. R., Trainor, B. C., Rosenfeld, C. S. 2017. Exposure to extrinsic stressors social defeat or bisphenol A, eliminates sex differences in DNA methyltransferase expression in the amygdala. *Journal of Neuroendocrinology*, **29**, 1-9.
63. Fuxjager, M. J., Trainor, B. C., and Marler, C. A. 2017. What can animal research tell us about the link between androgens and social competition in humans. *Hormones and Behavior*, **92**, 182-189.
62. Laman-Maharg, A. & Trainor, B. C. 2017. Stress, sex, and motivated behaviors. *Journal of Neuroscience Research*, **95**, 83-92.
61. Duque-Wilckens, N., Steinman, M. Q., Laredo, S. A., Hao, R., Perkybile, A. M., Bales, K. L. & Trainor, B. C. 2016. Effects of V1a receptor in bed nucleus of stria terminalis on social behavior and anxiety in males and females. *Neuropharmacology*, **110**, 406-414.
60. Steinman, M. Q. & Trainor, B. C. 2017. Sex differences in the effects of social defeat on brain and behavior in the California mouse: insights from a monogamous rodent. *Seminars in Cell and Developmental Biology*, **61**, 92-98
59. Shields, G. S., Lam, J. C. W., Trainor, B. C. & Yonelinas, A. P. 2016. Exposure to acute stress enhances decision-making competence: evidence for the role of DHEA. *Psychoneuroendocrinology*. **67**, 51-60.
58. Shields, G. S., Trainor, B. C., Lam, J. C. W., and Yonelinas, A. P. 2016. Acute stress impairs cognitive flexibility in men not women. *Stress*, **20**, 1-5.
57. Steinman, M. Q., Duque-Wilckens, N., Greenberg, G. D., Hao, R. Campi, K. L., Laredo, S. A., Laman-Maharg, A., Manning, C. E., Doig, I. E., Lopez, E. M., Walch, K., Bales, K. L. and Trainor, B. C. 2016. Sex-specific effects of stress on oxytocin neurons correspond with responses to intranasal oxytocin. *Biological Psychiatry*, **80**, 406-414 (cover image).
56. Greenberg, G. D., Doig, I. E., Steinman, M. Q., & Hao, R., Trainor, B. C. 2015. Effects of social defeat on dopamine neurons in the ventral tegmental area in males and females. *European Journal of Neuroscience*, **42**, 3081-3094.
55. Heimovics, S. A., Trainor, B. C., Soma, K. K. 2015. Rapid effects of estradiol on aggression: the fast and the furious. *Integrative and Comparative Biology*, **55**, 281-293.
54. Perea-Rodriguez, J. P., Takahashi, E. Y., Amador, T. M., Hao, R. C., Saltzman, W. & Trainor, B. C. 2015. Effects of reproductive experience on central expression of progesterone, oestrogen ( $\alpha$ ), oxytocin, and vasopressin (V1a) receptor mRNA in male California mice (*Peromyscus californicus*). *Journal of Neuroendocrinology*, **27**, 245-254.
53. Laredo, S. A., Steinman, M. Q., Robles, C. F., Ferrer, E. & Trainor, B. C. 2015. Effects of defeat stress on behavioral flexibility in males and females: modulation by the mu-opioid receptor. *European Journal of Neuroscience*, **41**, 434-441.

52. Steinman, M. Q., Laredo, S. A., Lopez, E. L., Manning, C. E., Hao, R., Doig, I. E., Campi, K. L., Flowers, A. E., Knight, J. K., Trainor, B. C. 2015. Hypothalamic vasopressin systems are more sensitive to the long term effects of social defeat in males versus females. *Psychoneuroendocrinology*, **51**, 122-134.
51. Rosenfeld, C. S. & Trainor, B. C. 2014. Environmental health factors and sexually dimorphic differences in behavioral disruptions. *Current Environmental Health Reports*, **1**, 287-301.
50. Laredo, S. A., Villalon Landeros, R. & Trainor, B. C. 2014. Rapid effects of estrogens on behavior: environmental modulation and molecular mechanisms. *Frontiers in Neuroendocrinology*. **35**, 477-458.
49. Greenberg, G. D., Howerton, C. L., & Trainor, B. C. 2014. Fighting in the home cage: dominance hierarchies and effects on neurobiological markers within the social decision-making network of house mice (*Mus musculus*). *Neuroscience Letters*, **566**, 151-155.
48. Specia, D. J., Ogata, G., Mandikian, D., Willer, S. W., Eum, K., Wenzel, H. J., Doisy, E. T., Matt, L., Campi, K. L., Golub, M. S., Nerbonne, J. M., Hell, J. H., Trainor, B. C., Sack, J. T., Schwartzkroin, P. A. & Trimmer, J. S. 2014. Deletion of the homeostatic suppressor Kv2.1 leads to neuronal and behavioral hyperexcitability. *Genes, Brain, and Behavior*, **13**, 394-408.
47. Laredo, S. A., Orr, V. N., McMackin, M. Z. & Trainor, B. C. 2014. The effects of exogenous melatonin and melatonin receptor blockade on aggression and estrogen-dependent gene expression in the California mouse (*Peromyscus californicus*), *Physiology and Behavior*, **128**, 86-91.
46. Robles, C. F., McMackin, M. Z., Doig, I. E., Campi, K. L., Takahashi, E. Y., Pride, M. & Trainor, B. C. 2014. Sex differences in the effects of kappa opioid receptors on conditioned place aversion and social interaction behavior. *Behavioural Brain Research*, **262**, 84-93.
45. Greenberg, G. D., Laman-Maharg, A., Campi, K. L., Voigt, H., Orr, V. N. & Trainor, B. C. 2014. Sex differences in stress-induced social withdrawal: role of brain derived neurotrophic factor in the bed nucleus of the stria terminalis. *Frontiers in Behavioral Neuroscience*, **7**, 223.
44. Campi, K. L., Greenberg, G. D., Kapoor, A., Ziegler, T. E. & Trainor, B. C. 2014. Sex differences in effects of D1 dopamine receptors on social withdrawal. *Neuropharmacology*, **77**, 208-216.
43. Campi, K. L., Jameson, C. E. & Trainor, B. C. 2013. Sexual dimorphism in the brain of the monogamous California mouse (*Peromyscus californicus*). *Brain Behavior and Evolution*, **81**, 236-249.
42. Laredo, S. A., Villalon Landeros, R., Dooley, J. C., Orr, V. N., Silva, A. L., Crean, K. K., Steinman, M. Q. & Trainor, B. C. 2013. Nongenomic effects of estradiol on aggression occur under short day but not long day photoperiods. *Hormones and Behavior*, **64**, 557-565.
41. Trainor, B. C., Takahashi, E. Y., Campi, K. L., Florez, S. A., Greenberg, G. D., Laman-Maharg, A., Laredo, S. A., Orr, V. N., Silva, A. L. and Steinman, M. Q. 2013. Sex differences in stress-induced social withdrawal: independence from adult gonadal hormones and inhibition of female phenotype by corncob bedding. *Hormones and Behavior*, **63**, 543-550.
40. Greenberg, G. D., van Westerhuyzen, J. A., Bales, K. L. & Trainor, B. C. 2012. Is it all in the family? The effects of early social structure on neural-behavioral systems of prairie voles (*Microtus ochrogaster*), *Neuroscience*, **216**, 46-56. (cover article).
39. Renn, S. C. P., Fraser, E. J., Aubin-Horth, N., Trainor, B. C., Hofmann, H. A. 2012. Females of an African cichlid fish display male-typical behavior in the absence of males. *Hormones and Behavior*, **61**, 496-503.
38. Steinman, M. Q., Knight, J. A. & Trainor, B. C. 2012. Effects of photoperiod and food restriction on the reproductive physiology of female California mice. *General and Comparative Endocrinology*. **176**, 391-399
37. Villalon Landeros, R., Yoo, H. J., Morisseau, C., Fu, S., Hammock, B. D. & Trainor, B. C. 2012. Corncob bedding reverses the effects of estrogens on aggressive behavior and reduces estrogen receptor alpha expression in the brain. *Endocrinology*, **153**, 949-953.
36. Trainor B. C. 2011. Stress responses and the mesolimbic dopamine system: social contexts and sex differences. *Hormones and Behavior*, **60**, 457-469. (cover article)
35. Trainor, B. C., Pride, M. C., Villalon Landeros, R., Knoblauch, N. W., Takahashi, E. Y., Silva, A. L. & Crean, K. K. 2011. Sex differences in social interaction behavior following social defeat stress in the monogamous California mouse. *PLoS One*, e17405.

34. Steinman, M. Q., Crean, K. K. and Trainor, B. C. 2011. Effects of photoperiod and food restriction on spatial memory. *European Journal of Neuroscience*, **33**, 361-370.
33. Trainor, B. C., Takahashi, E., Silva, A. L., Crean, K. K., and Hostetler, C. 2010. Photoperiod and sex differences in hormonal responses to social conflict in the monogamous California mouse. *Hormones and Behavior*, **58**, 506-512.
32. Silva, A. L., Fry, W. H. D., Sweeney, C. and Trainor, B. C. 2010. Effects of photoperiod and experience on aggressive behavior in female California mice. *Behavioural Brain Research*, **208**, 528-534
31. Trainor, B. C., Crean, K. K., Fry, W. H. D., and Sweeney, C. 2010. Activation of extracellular signal-regulated kinases in social behavior circuits during resident-intruder aggression tests. *Neuroscience*, **165**, 325-336.
30. Trainor, B. C., Sweeney, C., and Cardiff, R. D. 2009. Isolating the effects of social interactions on cancer biology. *Cancer Prevention Research*, **2**, 843-846.
29. Corbin, C. J., Berger, T., Ford, J. J., Roselli, C. E., Sienkiewicz, W., Trainor, B. C., Roser, J. F., Vidal, J. D., Harada, N., and Conley, A. J. 2009. Pocrine brain aromatase cytochrome P450: isoform characterization, sexually dimorphic and spatial expression, and regulation by enzyme inhibition in neonatal boars. *Biology of Reproduction*, **81**, 388-395.
28. Trainor, B. C., Finy, M. S. & Nelson, R. J. 2008. Paternal aggression in a biparental mouse: parallels with maternal aggression. *Hormones and Behavior*, **53**, 200-207.
27. Trainor, B. C., Finy, M. S. & Nelson, R. J. 2008. Estradiol rapidly increases short-day aggression in a non-seasonally breeding rodent. *Hormones and Behavior*, **53**, 192-199.
26. Workman, J. L., Trainor, B. C., Finy, M. S. & Nelson, R. J. 2008. Effects of neuronal nitric oxide synthase and social housing of anxiety-like behavior. *Behavioural Brain Research*, **187**, 109-115.
25. Nelson, R. J. & Trainor, B. C. 2007. Neural mechanisms of aggression. *Nature Reviews Neuroscience*, **8**, 536-546.
24. Trainor, B. C., Rowland, M. R. & Nelson, R. J. 2007. Photoperiod affects estrogen receptor alpha, estrogen receptor beta, and aggressive behavior. *European Journal of Neuroscience* **26**, 207-218
23. Navara, K. J. Trainor, B. C., Nelson, R. J. 2007. Photoperiod alters macrophage responsiveness, but not expression of toll-like receptors in Siberian hamsters. *Comparative Biochemistry and Physiology*, **148**, 354-359.
22. Trainor, B. C., Lin, S., Finy, M. S., Rowland, M. R. & Nelson, R. J. 2007. Photoperiod reverses the effects of estrogens on male aggression via genomic and nongenomic pathways. *Proceedings of the National Academy of Sciences U.S.A.*, **104**, 9840-9845.
21. Martin, L. B. II, Trainor, B. C., Finy, M. S., Nelson, R. J. 2007. HPA activity and neotic and anxiety-like behavior vary among *Peromyscus* species. *General and Comparative Endocrinology*, **151**, 342-350.
20. Trainor, B. C. & Hofmann, H. A. 2007. Somatostatin and somatostatin receptor gene expression in dominant and subordinate cichlid fish. *Behavioural Brain Research*, **179**, 314-320.
19. Trainor, B. C., Workman, J. L., Jessen, R. & Nelson, R. J. 2007. Impaired nitric oxide synthase signaling dissociates social investigation and aggression. *Behavioral Neuroscience*, **121**, 362-369.
18. Trainor, B. C. & Hofmann, H. A. 2006. Somatostatin regulates aggressive behavior in the cichlid fish, *Astatotilapia burtoni*. *Endocrinology*, **147**, 5119-5125.
17. Frazier, C. R. M., Trainor, B. C., Cravens, C. J., Whitney, T. K. & Marler, C. A. 2006. Paternal behavior influences development of aggression and vasopressin expression in male California mouse offspring. *Hormones and Behavior*, **50**, 699-707.
16. Trainor, B. C., Greiwe, K. M. & Nelson, R. J. 2006. Individual differences in ER $\alpha$  in select brain nuclei are associated with individual differences in aggression. *Hormones and Behavior*, **50**, 338-345.
15. Pyter, L. M., Trainor, B. C. & Nelson, R. J. 2006. Testosterone and photoperiod interact to affect spatial learning and memory in adult male white-footed mice (*Peromyscus leucopus*). *European Journal of Neuroscience*, **23**, 3056-3062.
14. Trainor, B. C., Martin, L. B., Kuhlman, J., Greiwe, K. M. & Nelson, R. J. 2006. Social and

- photoperiod effects on reproduction. *General and Comparative Endocrinology*, **30**, 346-355
13. Trainor, B. C., Kyomen, H. H. & Marler, C. A. 2006. Estrogenic encounters: How interactions between aromatase and the environment modulate aggression. *Frontiers in Neuroendocrinology*, **27**, 170-179.
  12. Nelson, R. J., Trainor, B. C., Chiavegatto, S. & Demas, G. E. 2006. Pleiotropic contributions of neuronal nitric oxide synthase (NOS-1) to aggressive behavior. *Neuroscience and Biobehavioral Reviews*, **30**, 346-355
  11. Trainor, B. C. & Basolo, A. L. 2006. Location, location, location: stripe position effects on female sword preference. *Animal Behaviour*, **71**, 135-140.
  10. Marler, C. A., Trainor, B. C., Davis, E. S. 2005. Aggression and paternal behavior. *Current Directions in Psychological Science*, **14**, 163-166.
  9. Marler, C. A., Oyegbile, T., Plavicki, J. & Trainor, B. C. 2005. Response to Wingfield Commentary on "A continuing saga: the role of testosterone in aggression". *Hormones and Behavior*, **48**, 256-258.
  8. Trainor, B. C., Bird, I. M. & Marler, C. A. 2004. Opposing hormonal mechanisms of aggression revealed through short-lived testosterone manipulations and multiple winning experiences. *Hormones and Behavior*, **45**, 115-121.
  7. Trainor, B. C., Bird, I. M., Alday, N. A., Schlinger, B. A. & Marler, C. A. 2003. Variation in aromatase activity in the medial preoptic area and plasma progesterone is associated with the onset of paternal behavior. *Neuroendocrinology*, **78**, 36-44.
  6. Trainor, B. C., Rouse, K. L. & Marler, C. A. 2003. Arginine vasotocin interacts with the social environment to regulate advertisement calling in the gray treefrog (*Hyla versicolor*). *Brain Behavior and Evolution*, **61**, 165-171.
  5. Marler, C. A., Bester-Meredith, J. K. & Trainor, B. C. 2003. Paternal behavior and aggression: Endocrine mechanisms and nongenomic transmission of behavior. *Advances in the Study of Behavior*, **32**, 263-323.
  4. Basolo, A. L. & Trainor, B. C. 2002. The conformation of a female preference for a composite male trait in green swordtails. *Animal Behaviour*, **63**, 469-474.
  3. Trainor, B. C. & Marler, C. A. 2002. Testosterone promotes paternal behaviour in a monogamous mammal via conversion to oestrogen. *Proceedings of the Royal Society of London Series B*, **269**, 823-829.
  2. Trainor, B. C. & Marler, C. A. 2001. Testosterone, paternal behavior, and aggression in the monogamous California mouse, *Peromyscus californicus*. *Hormones and Behavior*, **40**, 32-42
  1. Trainor, B. C. & Basolo, A. L. 2000. An evaluation of video playback using *Xiphophorus helleri*. *Animal Behaviour*, **59**, 83-89.

#### Chapters and other publications

12. Duque-Wilckens, N., Marler, C. A., Trainor, B. C. 2018. Aggression and territoriality. In: J. Choe, editor. *Encyclopedia of Animal Behavior 2<sup>nd</sup> Edition*. Elsevier, San Diego, CA.
11. Rieger, N. S., Fuxjager, M. J., Trainor, B. C., Zhao, X. & Marler, C. A. in press. Behavioral and neuroendocrine plasticity in the form of winner and loser effects. In: Mehta & Schultheiss, editors. *Handbook of Social Neuroendocrinology*. Oxford University Press.
10. Duque-Wilckens, N. & Trainor, B. C. Mechanisms of aggression in females. 2017. In: R. J. Nelson, editor. *Oxford Research Encyclopedia of Neuroscience* (R. J. Nelson, ed).
9. Trainor, B. C., Sisk, C. L & Nelson, R. J. 2017. Hormonal processes in the development and expression of aggressive behavior. In: Pfaff et al. editors. *Hormones Brain and Behavior 3<sup>rd</sup> Edition*. Academic Press, pp 145-173.
8. Greenberg, G. D. & Trainor, B. C. 2016. Sex differences in social behavior and the role of the social decision-making network. In: R. M. Shansky (Ed.) *Neuroscience of Sex*. Elsevier, 77-106.
7. Conley, A. C., Orr, V. N., Trainor, B. C., Berger, T., Hughes, A. 2012. Multiple forms of aromatase in suiforms: tissue distribution, regulation and functional significance. In: J. Balthazart and G. F. Ball, editors, *Brain Aromatase, Estrogens, and Behavior*. Oxford University Press, New York.
6. Laredo, S. A. & Trainor, B. C. 2012. Aromatase, photoperiod, and nongenomic effects of estrogens on behavior. In: J. Balthazart and G. F. Ball, Editors, *Brain Aromatase, Estrogens, and Behavior*.

Oxford University Press, New York, Pp 399-415.

5. Trainor, B. C. and Nelson, R. J. 2012. Neuroendocrinology of Aggressive Behavior, *In: G. Fink et al., editors. Handbook of Neuroendocrinology*, Elsevier: San Diego, CA, pp 509-520.
4. Steinman, M. Q. and Trainor, B. C. 2010. Rapid effects of steroid hormones on animal behavior. *Nature Education Knowledge* 1(10):1
3. Trainor, B. C. and Marler, C. A. 2010. Aggression and territoriality. *In: J. Moore and M. Breed Editors. Encyclopedia of Animal Behavior*. Elsevier, New York, pp 30-34.
2. Trainor, B. C., Sisk, C. L & Nelson, R. J. 2009. Hormonal processes in the development and expression of aggressive behavior. *In: Pfaff et al. editors: Hormones Brain and Behavior 2<sup>nd</sup> Edition*. Elsevier, San Diego, pp 167-203.
1. Marler, C. A., Trainor, B. C., Gleason, E., Bester-Meredith, J. K. & Becker, E. 2008. The effects of paternal behavior on offspring aggression and hormones in the biparental California mouse. *In: R. S. Bridges editor. Neurobiology of the Parental Brain*, Academic Press, New York, pp. 435-448.

#### Manuscripts in Review

- Steinman, M. Q., Duque-Wilckens, N & Trainor, B. C. *in review*. Neural circuits of oxytocin mediating social salience in appetitive and aversive contexts. *Biological Psychiatry*.
- Loeonzino, M., Ponzoni, L., Braida, D., Gigliucci, V., Ceresini, I., Busnelli, M., Duque-Wilckens, N., Nishimori, K., Trainor, B. C. Sala, M., Chini, B. *in review*. Impaired approach to novelty and striatal alterations in the oxytocin receptor deficient mouse model of autism.

#### **Presentations**

##### Invited Colloquia

- Trainor, B. C. 2018. Oxytocin receptors in extended amygdala induce social vigilance. Neuroscience Colloquium. Michigan State University.
- Trainor, B. C. 2017. Stress, oxytocin and social avoidance. Ecology, Evolution, and Conservation Biology Colloquium. San Francisco State University.
- Trainor, B. C. 2016. Oxytocin facilitates stress-induced social withdrawal in females. Department of Psychology. Temple University.
- Trainor, B. C. 2016. Coping with social stress: a surprising role for oxytocin. Sacramento Valley Branch of the American Association of Laboratory Animal Research. Davis, CA.
- Trainor, B. C. 2015. Coping with social stress: a surprising role for oxytocin. Neuroscience and Behavior Colloquia. University of Massachusetts at Amherst.
- Trainor, B. C. 2012. Sex differences in behavioral and neurobiological responses to social stress. Department of Physiology. Emory University.
- Trainor, B. C. 2010. Rapid effects of estrogens and brain networks of male aggression. Cell and Molecular Biology Department. Tulane University.
- Trainor, B. C. 2009. Is there a season for everything? Photoperiod and physiology in the California mouse. Animal Science Seminar. University of California, Davis.
- Trainor, B. C. 2009. Estrogens and brain networks of aggression. Section of Integrative Biology. University of Texas, Austin.
- Trainor, B. C. 2008. Environmental regulation of estrogen dependent social behavior. Animal Behavior Group Seminar. University of California, Davis.
- Trainor, B. C. 2008. Environmental regulation of estrogen dependent social behavior. Department of Biology. University of California, Riverside.
- Trainor, B. C. 2007. Environmental regulation of estrogen dependent social behavior. Department of Biological Sciences. University of South Carolina.
- Trainor, B. C. 2007. Environmental regulation of estrogen dependent social behavior. Department of Psychology. University of California – Davis.
- Trainor, B. C. 2005. Estrogenic encounters: How interactions between estrogen and the environment affect aggression. Cummings School of Veterinary Medicine, Tufts University.
- Trainor, B. C. 2005. Estrogenic encounters: How interactions between estrogen and the environment



- affect aggression. Department of Biology. College of Wooster.
- Trainor, B. C. 2004. Male social behavior and aromatization in biparental California mice. Department of Biology. Amherst College.
- Trainor, B. C. 2003. Behavioral neuroendocrinology of paternal behavior and aggression in a biparental rodent. Department of Psychology. U. Wisconsin – Madison.
- Trainor, B. C. 2001. Testosterone, aromatase, and paternal behavior in the monogamous California mouse, *Peromyscus californicus*. Invited Seminar. U. Wisconsin – Whitewater.
- Trainor, B. C. 1998. Using video playback to examine female preferences. Interdisciplinary Seminar in Animal Behavior. U. Wisconsin- Madison.
- Trainor, B. C. 1998. Female preference for colored components of the sword in *Xiphophorus helleri*. Ecology & Evolution Seminar. U. Nebraska-Lincoln.

### Symposia at Professional Meetings

- Trainor, B. C. & Veenema, A. H. 2018. Social motivation across the lifespan (Co-chair). Society for Neuroscience Minisymposium. San Diego, CA.
- Trainor, B. C. 2018. Oxytocin in the bed nucleus of the stria terminalis induces social avoidance. Understanding the neuroregulatory actions of oxytocin and its potential clinical applications. Erice, Italy.
- Trainor, B. C. 2017. Oxytocin regulation of social approach and avoidance. Developmental Affective Neuroscience Symposium. University of Pittsburgh, PA.
- Trainor, B. C. 2017. Oxytocin receptors in the anteromedial bed nucleus of the stria terminalis promote stress-induced social avoidance in female. European Behavioral Pharmacology Society. Crete, Greece
- Trainor, B. C. 2017. From circuits to transcripts: the role of the BNST in anxiety (Chair). Society for Biological Psychiatry. San Diego, CA.
- Trainor, B. C. 2017. Neuroendocrine basis of stress. Environmental Justice and Children Symposium. California Office of Environmental Health Hazard Assessment.
- Trainor, B. C. 2016. Activation of oxytocin receptors induces defeat-induced social withdrawal in female California mice (Panelist). American College of Neuropsychopharmacology. Hollywood, FL.
- Trainor, B. C. 2016. Kappa opioid receptors and social stress in males and females. Fuller Symposium. American Society for Pharmaceuticals and Experimental Therapeutics. San Diego, CA.
- Trainor, B. C. 2016. How and why to study both sexes in neuroscience research (Panelist). Winter Conference on Brain Research. Breckenridge, CO.
- Trainor, B. C. 2015. Kappa opioid receptors and social stress in males and females (Speaker). Society for Neuroscience Annual Meeting Minisymposium. Chicago, IL.
- Trainor, B. C. 2015. Effects of social defeat stress on oxytocin signaling in males and females. Society for Behavioral Neuroendocrinology Annual Meeting. Pacific Grove, CA. Co-chair/Speaker
- Trainor, B. C. 2015. Possible antidepressant effects of kappa opioid receptor agonists following social defeat stress. Kappa Therapeutic Conference, Chapel Hill, NC.
- Trainor, B. C. 2015. Sex differences in effects of stress on the aversive properties of kappa opioid Receptor (Speaker). Organization for the Study of Sex Differences Annual Meeting, Palo Alto, CA.
- Trainor, B. C. 2014. Stress and oxytocin signaling in males and females (Co-chair/Speaker). International Society for Psychoneuroendocrinology Annual Meeting. Montreal, Canada.
- Trainor, B. C. 2011. Environmental effects on estrogen-sensitive mechanisms of aggression (Speaker). North American Society for Comparative Endocrinology. Ann Arbor, MI.
- Trainor, B. C. 2011. Rapid effects of estradiol on aggressive behavior (Speaker). Society for Behavioral Neuroendocrinology Annual Meeting, Querétaro, Mexico.
- Trainor, B. C. 2010. Effects of photoperiod and experience on aggressive behavior in female California mice. (Speaker). International Society for Research on Aggression Conference. Storrs, CT.
- Trainor, B. C. 2007. Environmental mediation of estrogen dependent aggressive behavior via genomic and non-genomic mechanisms. (Speaker). American Psychiatric Association Annual Meeting.
- Trainor, B. C. 2006. Photoperiod determines the effect of estrogen on aggressive behavior. (Speaker). Society for Behavioral Neuroendocrinology Annual Meeting. Pittsburgh, PA.

Trainor, B. C. 2003. Increased medial preoptic aromatase activity is associated with the onset of estrogen dependent paternal behavior in a bi-parental rodent. Young Investigators Symposium, Workshop on Steroid Hormones and Brain Function.

Trainor, B. C. & Marler, C. A. 2002. Testosterone promotes paternal behavior in a monogamous mammal through conversion to estrogen. Society for Integrative and Comparative Biology. Annual Meeting.

Trainor, B. C., Rouse, K. L. & Marler, C. A. 2002. Arginine vasotocin interacts with the social environment to regulate advertisement calling in the gray treefrog (*Hyla versicolor*). Animal Behavior Society. Annual Meeting.

Basolo, A. L. & Trainor, B. C. 1998. Female preference for a composite trait in *Xiphophorus helleri*. Animal Behavior Society. Annual Meeting.

## **Courses Taught**

PSC 101, Introduction to Biological Psychology, University of California, Davis

PSC 216, Behavioral Genetics, University of California, Davis

PSC 125, Behavioral Genetics and Epigenetics, University of California, Davis

PSC 123, Hormones and Behavior, University of California, Davis

## **Trainees**

### Graduate Trainees

Alexia Williams 2015-present (Psychology)

Emily Wright 2015-present (Psychology)

Grant Shields 2014-present (Psychology, co-adviser w/Yonelinas)

Pei Lou starting 2018-present (Psychology)

### Former Trainees (July 1, 2017)

#### Graduate Students

Michael Steinman, PhD (2014)

Sarah Laredo, PhD (2014)

Gian Greenberg, PhD (2014)

Abby Laman-Maharg (2017)

current: post-doc Scripps Institute

current: Medical Writer Arbor Scientia

current: Senior Medical Writer Arbor Scientia

current: Instructor Los Rios Community College

#### Post-doc

Katharine Campi, PhD, post-doc 2010-2014

Natalia Duque-Wilckens, DVM, PhD. 2017

current: Instructor Sierra College

current: post-doc Michigan State University

## **Society Memberships**

Society for Behavioral Neuroendocrinology

Society for Biological Psychiatry

Society for Neuroscience