Michael A. Emery

Doctoral Candidate
Interdisciplinary Program in Neuroscience
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Education and Research Experience

PhD Candidate — Interdisciplinary Program in Neuroscience, TAMIN, Texas A&M University — 2011-present, Dr. Shoshana Eitan

- Behavioral and molecular approaches to explore differential effects of opioids on burn pain treatment, the dopamine system, and gene expression in adolescents using a mouse model
- Committee: Shoshana Eitan (chair), Paul J. Wellman, Michelle Hook, C. Jane Welsh
- Dissertation: *Drug-Specific Differences Among the Opioid Analgesics Hydrocodone, Oxycodone and Morphine*

Rotation Student — Interdisciplinary Program in Neuroscience, TAMIN, Texas A&M University — 2011, August-December, Drs. Mark Harlow, Ian Murray

Laboratory Technician — Restorative Neuroscience Lab — Dec. 2010 – Aug. 2011, Dr. Michael R. Hoane, Director

- Ran an independent research project culminating in a publication and a poster presented at a national conference.

Bachelor of Arts — Psychology, minor in Chemistry, Southern Illinois University Carbondale — 2006 – 2010

- Graduated *Magna cum Laude*

Undergraduate Research Assistant — Restorative Neuroscience Lab — 2010, February-December, Dr. Michael R. Hoane, Director

- Department of Psychology and Center for Integrated Research in Cognitive and Neural Sciences, SIUC.

Undergraduate Research Assistant — Fall 2007, Summer 2008, Dr. Paul Etcheverry

- Department of Psychology, SIUC.

Publications

In preparation:

Emery M.A., Bates, M.L.S., Horrax, C.T., Wellman P.J., & Eitan S. (In preparation, estimated submission summer 2017). "Differential effects of hydrocodone, oxycodone, and morphine on striatal gene expression."

Bates, M.L.S., **Emery, M.A.**, Horrax, C.T., Wellman, P.J., & Eitan S. (In preparation, estimated submission summer 2017). "Social housing influences on striatal gene expression."

Bates, M.L.S., Hofford, R.S., **Emery, M.A.**, Wellman, P.J., and Eitan S. (In preparation, estimated submission summer 2017). "Oxytocin and vasopressin mediate the social housing effect on morphine-conditioned place preference."

Emery M.A., Bates, M.L.S., Wellman P.J., & Eitan S. (In preparation, estimated submission winter 2017). "Drug-specific differences on opioid-mediated D2 dopamine receptor behavioral hyper-sensitivity are driven by the mu-receptor."

Emery M.A., Bates, M.L.S., Wellman P.J., & Eitan S. (In preparation, estimated submission spring 2018). "Drug-specific differences of opioids on morphine-conditioned place preference."

Under Review:

1. Bates, M.L.S., **Emery, M.A.**, Wellman, P.J., & Eitan S. (Submitted, estimated publication 2017). "Inhibiting social support from massage-like stroking increases morphine dependence."

2. **Emery M.A.**, Bates, M.L.S., Wellman P.J., & Eitan S. (Submitted, estimated publication 2017). "Early response to opioid treatment predicts the development of burn pain."

Published:

3. Eitan S., **Emery M.A.**, Bates, M.L.S., & Horrax, C.T. (In press, 2017). Opioid addiction: Who are your real friends? Review article. *Neuroscience and Biobehavioral Reviews.* doi: 10.1016/j.neubiorev.2017.05.017.

4. **Emery M.A**., Bates, M.L.S., Wellman P.J., & Eitan S. (In press, 2017). Hydrocodone is more effective than either morphine or oxycodone in suppressing the development of burn-induced mechanical allodynia. *Pain Medicine.* doi: 10.1093/pm/pnx050

5. **Emery M.A.**, Bates, M.L.S., Wellman P.J., & Eitan S. (In press, 2017). Hydrocodone, but neither morphine nor oxycodone, is effective in suppressing burn-induced mechanical allodynia in the uninjured foot contralateral to the burn. *Journal of Burn Care and Research.* doi: 10.1097/BCR.0000000000000517

6. **Emery M.A.**, Bates, M.L.S., Wellman P.J., & Eitan S. (2017). Burn-injury decreases the antinociceptive effects of opioids. *Behavioural Pharmacology, 28*(4): 285-293. doi: 10.1097/FBP.0000000000000286

7. Bates, M.L.S., **Emery, M.A.**, Wellman, P.J., & Eitan S. (2016). Social environment alters opioid-induced hyperalgesia and antinociceptive tolerance in adolescent mice. *European Journal of Pain, 20*(6): 998-1009. doi: 10.1002/ejp.825

8. **Emery M.A.**, Bates M.L.S., Wellman P.J., & Eitan S. (2016). Differential effects of oxycodone, hydrocodone, and morphine on activation levels of signaling molecules. *Pain Medicine, 17*(5): 908-914. doi: 10.1111/pme.12918

9. **Emery M.A**., Bates M.L.S., Wellman P.J., & Eitan S. (2015). Differential effects of oxycodone, hydrocodone, and morphine on the responses of D2/D3 dopamine receptors. *Behavioural Brain Research. 284*: 37–41. doi: 10.1016/j.bbr.2015.01.023.

10. Bates, M.L.S., **Emery, M.A.**, Wellman, P.J., & Eitan, S. (2014). Social housing conditions influence morphine dependence and the extinction of morphine place preference in adolescent mice. *Drug and Alcohol Dependence 142*: 283–289. doi: 10.1016/j.drugalcdep.2014.06.036.

11. Barwatt J.W., Hofford R.S., **Emery M.A**., Bates M.L.S., Wellman P.J., & Eitan S. (2013). Differential effects of methadone and buprenorphine on the response of D2/D3 dopamine receptors in adolescent mice. *Drug and Alcohol Dependence 132*(3): 420–426. doi: 10.1016/j.drugalcdep.2013.07.016.

12. Vonder Haar C, **Emery M.A.**, & Hoane M.R. (2012). Chronic folic acid administration confers no treatment effects in either a high or low dose following unilateral controlled cortical impact injury in the rat. *Restorative Neurology and Neuroscience 30*(4): 291–302. doi: 10.3233/RNN-2012-110196.

13. Petrofes Chapa R.D., **Emery M.A**., Fawver J.N., & Murray I.V. (2012). Amyloids as Sensors and Protectors (ASAP) hypothesis. *Journal of Alzheimer's Disease 29*(3): 503–514. doi: 10.3233/JAD-2012-112015.

Awards and Honors

Awards

- Travel award, Behavior, Biology and Chemistry: Translational Research in Addiction conference, San Antonio Texas. March, 2017.
- Texas A&M Genomics Seed Grant: *Effects of various opioids and social environment on gene expression.* May 2014 – August 2015. PI: Shoshana Eitan.
- Texas A&M University College of Liberal Arts Seed Grant: *Opioid use in pediatric pain management*. April 2013 – March 2014. PI: Shoshana Eitan.
- Heep Fellowship in Neuroscience, Fall 2011 – Spring 2014.
- August L. & Thelma Fowler Scholarship, May 2006.

Honors

- SIUC Dean's List, College of Liberal Arts and College of Science, 11 of 12 eligible semesters.
- SIUC Department of Psychology Top 5%, 8 courses over three years.
- SIUC Scholastic Honors, College of Science or College of Liberal Arts, Honors Day, 4 of 4 eligible years.

Abstracts and Posters

* presenting author.

1. **Emery M.A**.*, Bates M.L.S., Horrax, C.T., Wellman P.J., and Eitan S. (2017, March). *Hydrocodone is more effective than morphine or oxycodone in suppressing burn-induced hyperalgesia*. Poster presented at the Annual Behavior, Biology, and Chemistry: Translational Research in Addiction conference, San Antonio, TX.

2. Horrax, C.T.*, **Emery M.A**.*, Bates M.L.S., Wellman P.J., and Eitan S. (2017, March). *Oxycodone, hydrocodone, and morphine differentially affect gene expression.* Poster presented at the Annual Behavior, Biology, and Chemistry: Translational Research in Addiction conference, San Antonio, TX.

3. Bates, M.L.S.*, **Emery, M.A.**, Wellman, P.J., and Eitan S. (2017, March). *The influence of social housing conditions on morphine-induced gene expression.* Poster presented at the Annual Behavior, Biology, and Chemistry: Translational Research in Addiction conference, San Antonio, TX.

4. Bates, M.L.S.*, **Emery, M.A.**, Wellman, P.J., and Eitan S. (2016, December). *The influence of social housing conditions on morphine-induced gene expression.* Poster presented at the Annual TAMIN SfN Poster Session.

5. **Emery M.A**.*, Bates M.L.S., Horrax, C.T., Wellman P.J., and Eitan S. (2016, November). *Hydrocodone is more effective than morphine or oxycodone in suppressing burn-induced hyperalgesia*. Poster presented at the 46th Annual Society for Neuroscience (SfN) Conference, San Diego, CA.

6. Horrax, C.T.*, **Emery M.A**.*, Bates M.L.S., Wellman P.J., and Eitan S. (2016, November). *Oxycodone, hydrocodone, and morphine differentially affect gene expression.* Poster presented at the 46th Annual Society for Neuroscience (SfN) Conference, San Diego, CA.

7. Bates, M.L.S.*, **Emery, M.A.**, Wellman, P.J., and Eitan S. (2016, November). *The influence of social housing conditions on morphine-induced gene expression.* Poster presented at the 46th Annual Society for Neuroscience (SfN) Conference, San Diego, CA.

8. **Emery M.A**.*, Bates M.L.S., Wellman P.J., and Eitan S. (2016, April). *Differential locomotor responses to quinpirole following various opioids is driven by the mu receptor*. Poster presented at Texas A&M University TAMIN Spring Symposium 2016.

9. **Emery M.A**.*, Bates M.L.S., Wellman P.J., and Eitan S. (2016, March). *Differential locomotor responses to quinpirole following various opioids is driven by the mu receptor.* Poster presented at Texas A&M University Student Research Week 2016.

10. **Emery M.A**.*, Bates M.L.S., Wellman P.J., and Eitan S. (2015, October). *Differential locomotor responses to quinpirole following various opioids is driven by the mu receptor.* Poster presented at the 45th Annual Society for Neuroscience (SfN) Conference, Chicago, IL.

11. Bates, M.L.S.*, **Emery, M.A.**, Wellman, P.J., and Eitan S. (2015, October). *Contribution of MRGPRB4-expressing sensory neurons to the socio-environmental effect on opioid dependence and reward in adolescent mice.* Poster presented at the 45th Annual Society for Neuroscience (SfN) Conference, Chicago, IL.

12. **Emery M.A**.*, Bates M.L.S., Wellman P.J., and Eitan S. (2015, March). *Differential effects of various opioids on the development of allodynia and abuse in the context of pain.* Poster presented at the Annual TAMIN Symposium.

13. Bates, M.L.S.*, **Emery, M.A.**, Wellman, P.J., and Eitan S. (2015, March). *Social housing conditions influence the analgesic properties of opioid in adolescent mice.* Poster presented at the Annual TAMIN Symposium.

14. **Emery M.A**.*, Bates M.L.S., Wellman P.J., and Eitan S. (2015, March). *Differential effects of various opioids on the development of allodynia and abuse in the context of pain.* Poster presented at Texas A&M Student Research Week.

15. **Emery M.A**.*, Bates M.L.S., Wellman P.J., and Eitan S. (2014, October). *Differential effects of various opioids on the development of allodynia and abuse in the context of pain.* Poster presented at the 44th Annual Society for Neuroscience (SfN) Conference, Washington, DC.

16. Bates, M.L.S.*, **Emery, M.A.**, Wellman, P.J., and Eitan S. (2014, October). *Social housing conditions influence the analgesic properties of opioids in adolescent mice.* Poster presented at the 44th Annual Society for Neuroscience (SfN) Conference, Washington, DC.

17. **Emery M.A**.*, Bates M.L.S., Wellman P.J., and Eitan S. (2014, April). *Differential effects of oxycodone, hydrocodone, and morphine on the response of D2/D3 dopamine receptors in adolescent mice.* Poster presented at the Annual TAMIN Symposium.

18. Bates, M.L.S.*, Cole, S., Hofford, R.S., **Emery, M.A.**, Wellman, P.J., and Eitan S. (2014, January). *Social housing conditions influence extinction of morphine place preference in adolescent mice.* Poster presented at the Annual TAMIN SfN Poster Session.

19. **Emery M.A**.*, Bates M.L.S., Wellman P.J., and Eitan S. (2013, November). *Differential effects of oxycodone, hydrocodone, and morphine on the response of D2/D3 dopamine receptors in adolescent mice.* Poster presented at the 43rd Annual Society for Neuroscience (SfN) Conference, San Diego, CA.

20. Bates, M.L.S.*, Cole, S., Hofford, R.S., **Emery, M.A.**, Wellman, P.J., and Eitan S. (2013, November). *Social housing conditions influence extinction of morphine place preference in adolescent mice.* Poster presented at the 43rd Annual Meeting of the Society for Neuroscience (SfN), San Diego, CA.

21. Seloff K. E.*, **Emery M. A.**, Bates M. L. S., and Eitan S. (2013, November). *The effects of repeated morphine exposure on metabotropic glutamate receptor activity in adolescent mice.* Poster presented at the 43rd Annual Meeting of the Society for Neuroscience (SfN), San Diego, CA.

22. Barwatt J.W., Hofford R.S., **Emery M.A**.*, Bates M.L.S., Wellman P.J., and Eitan S. (2013, April). *Differential effects of methadone and buprenorphine on the response of D2/D3 dopamine receptors in adolescent mice.* Poster presented at the Annual TAMIN Symposium.

23. Hofford R. S., Cole S. L., Bates M. L. S.*, **Emery M. A.**, Wellman P. J., and Eitan S. (2013, April). *The oxytocin and arginine vasopressin systems mediate the social effect on morphine conditioned place preference.* Poster presented at the Annual TAMIN Symposium.

24. Seloff K. E.*, **Emery M. A.**, Bates M. L. S., and Eitan S. (2013, April). *Repeated morphine exposure decreases mGluR1 activity in the dorsal striatum of adolescent mice at 2, but not 4 or 24, hours following final administration of morphine.* Presented at the Annual TAMIN Symposium.

25. Barwatt J.W., Hofford R.S., **Emery M.A.***, Bates M.L.S., Wellman P.J., and Eitan S. (2012, December). *Differential effects of methadone and buprenorphine on the response of D2/D3 dopamine receptors in adolescent mice.* Poster presented at the Annual TAMIN SfN Poster Session, December 6, 2012.

26. Hofford R. S., Cole S. L., Bates M. L. S.*, **Emery M. A.**, Wellman P. J., and Eitan S. (2012, December). *The oxytocin and arginine vasopressin systems mediate the social effect on morphine conditioned place preference.* Poster presented at the Annual TAMIN SfN Poster Session, December 6, 2012.

27. Barwatt J.W.*, Hofford R.S., **Emery M.A.***, Bates M.L.S., Wellman P.J., and Eitan S. (2012, October). *Differential effects of methadone and buprenorphine on the response of D2/D3 dopamine receptors in adolescent mice.* Poster presented at the 42nd Annual Society for Neuroscience (SfN) Conference, New Orleans, LA.

28. Hofford R. S., Cole S. L., Bates M. L. S.*, **Emery M. A.**, Wellman P. J., and Eitan S. (2012, October). *The oxytocin and arginine vasopressin systems mediate the social effect on morphine conditioned place preference.* Poster presented at the 42nd Annual Society for Neuroscience (SfN) Conference, New Orleans, LA.

29. Vonder Haar C.*, **Emery M.** and Hoane M.R. (2011, June). *Chronic folic acid administration does not improve recovery of function in either a low or high dose following unilateral controlled cortical impact.* Poster presented at the National Neurotrauma Symposium meeting in 2011, Ft. Lauderdale, FL.

30. **Emery M.A.***, and Hoane M.R. (2011, April). *Folic acid treatment does not result in behavioral sparing following unilateral controlled cortical impact in the rat.* Poster presented at the 2011 SIUC Undergraduate Research Forum, Carbondale, IL.

Presentations

Research in the Eitan Laboratory. 'TAMIN 101' data blitz and lab orientation session, Texas A&M University, Fall 2016.

Differential Effects of Various Opioids on Behavior, Signaling, and Gene Expression. TAMIN seminar series 'grad duo' talk, Texas A&M University, Spring 2016 (March 10).

Differential Effects of Different Opioids on the Locomotor Response of D2DR Receptors. TAMIN recruiting weekend data blitz session, Texas A&M University, Spring 2016 (February 12).

Differential Effects of Different Opioids on the Locomotor Response of D2DR Receptors. 'TAMIN 101' data blitz session, Texas A&M University, Fall 2015 (August 24).

Opioid Pain Medication in Adolescents: Use and Abuse of Different Drugs Result in Differential Outcomes. Behavioral and Cellular Neuroscience Program brownbag talk, Texas A&M University Psychology Dept., Spring 2014 (April 28).

Various Opioids Carry Differential Risks to the Adolescent Dopamine D2 Signaling Pathway. Behavioral and Cellular Neuroscience Program brownbag talk, Texas A&M University Psychology Dept., Fall 2012 (December 3).

Teaching Experience

Teaching evaluation scores:

"On the whole, this is a good instructor" 4.36/5.0
"I believe this instructor was an effective teacher" 4.45/5.0

Teaching Assistant — Experimental Psychology (PSYC 204), Texas A&M University. Five semesters, Spring 2015 – Spring 2017. Instructor of Record: Winfred Arthur, PhD

- This course meets University Writing Intensive requirements.
- Instructed and supervised the writing of individual, APA–style scientific final papers.

Guest Lecturer — Biology of Psychological Disorders (PSYC 333), Texas A&M University. Fall 2016. Instructor of Record: Shoshana Eitan, PhD

- Led journal-club-style presentation.

Guest Lecturer — Physiological Psychology, Honors (PSYC 335H), Texas A&M University Fall 2016. Instructor of Record: Shoshana Eitan, PhD

- Created and presented guest lecture entitled, 'The Long-term Consequences of Burn Injury'.

Guest Lecturer — Physiological Psychology (PSYC 335), Texas A&M University Spring 2016. Instructor of Record: Shoshana Eitan, PhD

- Created and presented guest lecture on Neuroanatomy.

Guest Lecturer — Physiological Psychology, Honors (PSYC 335H), Texas A&M University Fall 2014. Instructor of Record: Shoshana Eitan, PhD

- Created and presented guest lecture on Neuroanatomy.

Grader — Introduction to Psychology (PSYC 107), Texas A&M University Fall 2014. Instructor of Record: Rachel Smallman, PhD

- 2 sections, total of 430 students.

Undergraduate Teaching Assistant — Introduction to Psychology (PSYC 102), Southern Illinois University Carbondale Fall 2010. Course Supervisor: Meera Komarraju, PhD

- Limited number of undergraduate seniors offered this honor every year.

Skills and Laboratory Techniques

***Molecular Biology*:** DNA, RNA, and protein extractions, PCR (including RT-PCR and qPCR), Gel Electrophoresis, Western blotting, Immunoprecipitation, FPLC, TIRF microscopy.

***Histology*:** Various tissue preparations, microtome and cryostat tissue slicing, Nissl staining, immunohistochemistry.

***Small Animals*:** Stereotaxic surgery for rats and mice (including anesthesia), cannulation and micro-injection in mice, craniotomies, injections (i.p. and s.c.), p.o. (gavage), Controlled Cortical Impact injury modeling, tail vein blood draws in rats, perfusion, tissue harvesting in rats and mice, gross dissection of striatum and hippocampus, micropunches of OFC, NAc, striatum, hippocampus, VTA, and PAG.

***Behavioral Paradigms*:** Morris water maze, locomotor placing task, photobeam activity system, bilateral tactile adhesive removal task, Rotarod task, conditioned place preference/aversion, tail withdrawal assay, von Frey mechanical allodynia task, hot plate test, acetone test of cold sensitivity, forced swim test, open field test, elevated plus maze, novelty-induced hypophagia, sucrose preference test.

***Software Research Tools*:** Microsoft Office suite, SPSS, ImageTool (UTHSCSA), ImageJ (NIH), Adobe Photoshop, SigmaPlot, VersaMax & VersaMap.

Society Memberships

Sigma Xi, Associate Member, Texas A&M University Chapter	04/2016 – present
Faculty for Undergraduate Neuroscience (FUN), Student Member	09/2013 – present
Psi Chi, National Psychology Honor Society	11/2012 – present
Society for Neuroscience (SfN) Student Member	09/2012 – present
Golden Key National Honor Society	11/2009 – present
Sigma Alpha Lambda	07/2007 – present
Alpha Lambda Delta	04/2007 – present

Service, Outreach and Volunteer Activities

Graduate student Representative for TAMIN program to the Graduate and Professional Student Council	2015-16
Student Research Week Judge, Undergraduate oral presentations	2012, 2015
Student Research Week Judge, Undergraduate poster presentations	2015
Historian, SANDI neuroscience student organization	2014-15
Planning committee, TAMIN Annual Research Symposium	2012-2016
Student Research Week Judge, Graduate oral presentations	2013
Designed and implemented workshop for undergraduates, “How to apply to graduate school in neuroscience and related fields”	2015, 2016

Seminars and Certificates

Attended the Pathways to Careers in Science (PCS) Workshop at the Behavior, Biology and Chemistry: Translational Research in Addiction conference, San Antonio, Texas, March 3, 2017.

Attended College of Liberal Arts grant-writing seminar, August 25, 2016

Attended Departmental Teaching Assistant Training, Texas A&M University Dept. of Psychology, September/October 2014

Attended "Teaching Assistant Institute" by Texas A&M University Center for Teaching Excellence (CTE), August 2014

Attended graduate student workshop "Mentoring Undergraduates in Research." September 14, 2012

Attended 4-day teaching workshop presented by Dr. Ludy Benjamin, May 14–17, 2012

References

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C. Jane Welsh, Ph.D.
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Teaching

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