

# STEPHEN MAREN

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## RESEARCH INTERESTS

My research focuses on the neural mechanisms underlying emotional learning and memory in animals and the relevance of these mechanisms to clinical disorders of fear and anxiety, including post-traumatic stress disorder.

## EDUCATION

1993      **PhD**, Biological Sciences (Neurobiology), University of Southern California  
1991      **MS**, Biological Sciences (Neurobiology), University of Southern California  
1989      **BS**, Psychology (*cum laude* with Honors), University of Illinois at Urbana-Champaign

## EMPLOYMENT HISTORY

2015-pres    **Claude H. Everett, Jr. '47 Chair of Liberal Arts**, Department of Psychology and Institute for Neuroscience, Texas A&M University  
2012-pres    **Professor**, Department of Psychology and Institute for Neuroscience, Texas A&M University  
2006-2012    **Professor**, Department of Psychology and Neuroscience Program, University of Michigan  
2002-2006    **Associate Professor**, Department of Psychology and Neuroscience Program, University of Michigan  
1996-2002    **Assistant Professor**, Department of Psychology and Neuroscience Program, University of Michigan  
1993-1996    **Postdoctoral Fellow**, Department of Psychology, University of California, Los Angeles

## ADMINISTRATIVE APPOINTMENTS

2012-pres    **Area Coordinator** (Behavioral & Cellular Neuroscience), Department of Psychology, Texas A&M University  
2007-2012    **Director**, Neuroscience Graduate Program, University of Michigan  
2004-2007    **Associate Director**, Neuroscience Graduate Program, University of Michigan

## HONORS AND AWARDS

2015    **Memory and Cognitive Disorders Award**, McKnight Endowment for Neuroscience, McKnight Foundation  
2014    **Past-President**, Pavlovian Society  
2013    **President**, Pavlovian Society  
2012    **President-Elect**, Pavlovian Society  
2009    **Fellow**, Association for Psychological Science  
2005    **Faculty Recognition Award**, Horace H. Rackham School of Graduate Studies, University of Michigan  
2004    **Fellow**, American Psychological Association  
2001    **Distinguished Scientific Award for Early Career Contribution to Psychology** (Behavioral and Cognitive Neuroscience), American Psychological Association  
2001    **LS&A Excellence in Education Award**, College of Literature, Science & Arts, University of Michigan  
1990    **Honorable Mention**, Graduate Research Fellowship, National Science Foundation  
1989    **Dean's Fellowship**, University of Southern California

- 1989 **Inductee**, Phi Beta Kappa Honor Society  
 1987 **Edmund J. James Scholarship**, University of Illinois

## GRANTS

[CONTINUOUSLY FUNDED BY NIH SINCE 1995; >\$8.5M IN TOTAL]

### Active:

- 2015-2018 **Prefrontal-Hippocampal Interplay in Contextual Memory Retrieval.** McKnight Memory and Cognitive Disorders Program, McKnight Foundation. \$300,000 [4 of 170 awarded] 2/1/15-1/31/18  
 2015-2020 **Neural Substrates of Contextual Memory in Fear Extinction** (R01MH065961-12A1), National Institute of Mental Health, \$1,803,535. Role: PI. [Impact score:16, 3.0%] 2/1/15-1/31/20  
 2016-2018 **Neural Circuits for Stress-Induced Fear Relapse.** (F31MH107113-01A1), National Institute of Mental Health, \$64,185. Role: Sponsor (PI: Travis D. Goode, TAMIN) [Impact score: 19, 4.0%]  
 2016-2019 **Brain-Behavior Markers of Negative Affectivity, Comorbidity in Anxiety Disorders.** (K23MH105553-01A1). National Institutes of Mental Health, \$528,324. Role: Co-Investigator, Primary Mentor (PI: Annmarie MacNamara).

### Pending:

- 2016-2018 **Noradrenergic Modulation of Stress-Induced Deficits in Fear Extinction.** (F31MH112208-01), National Institute of Mental Health, \$73,307. Role: Sponsor (PI: Thomas F. Giustino, TAMIN)  
 2017-2022 **TAMU MARC U-STAR Undergraduate Student Program.** (T34XXXXX-01), National Institutes of Health, \$4,677,339.00. Role: Co-Investigator; Sponsor (PI: Daniel Howard, PPRI)  
 2017-2022 **Long-term Consequences of Developmental Nicotine Exposure on Hippocampal Excitatory Activity and Regulation of Anxiety Behavior.** (R01XXXXX-01). National Institutes of Health, \$1,856,250.00. Role: Co-Investigator (PI: Ursula Winzer-Serhan, NEXT, TAMHSC).

### Completed:

- 2008-2014 **Neural Substrates of Contextual Memory in Fear Extinction** (R01MH065961-06A1), National Institute of Mental Health, \$1,868,995. Role: PI [Impact score:120, 0.9%]  
 2010-2012 **Interactions Between the Ventral Hippocampus and Amygdala During Renewal of Fear** (F31MH019822-02), National Institute of Mental Health, \$64,185. Role: Sponsor (PI: Caitlin A. Orsini, Department of Psychology, University of Michigan)  
 2001-2016 **Early Stage Training in Neuroscience** (T32EY017878-07), National Eye Institute (and 6 others), \$1,491,060 Role: PI (ongoing at University of Michigan).  
 2006-2010 **Amygdaloid Function in Fear Conditioning** (R01MH073655-05), National Institute of Mental Health, \$760,963. Role: PI  
 2002-2008 **Neural Substrates of Contextual Memory** (R01MH065961-1A1), National Institute of Mental Health, \$1,532,450. Role: PI [Impact score:141, 7.6%]  
 2005-2008 **Cholinergic Plasticity in Auditory Input Processing** (R03MH73600), National Institute of Mental Health, \$152,708. Role: Co-I (Martin Sarter, PI)  
 1998-2003 **Amygdaloid Function in Fear Conditioning** (R29MH57865), First Independent Research Support and Transition Award, National Institute of Mental Health, \$452,000. Role: PI  
 2000-2003 **Learning and Memory in a Transgenic Mouse Model of Alzheimer's Disease**, Michigan Alzheimer's Disease Research Center Pilot Grant, National Institute of Aging, \$20,000. Role: PI  
 1999-1999 **Summer Research Grant**, Rackham Graduate School, University of Michigan, \$3,000. Role: PI  
 1997-1998 **Neural Basis of Contextual Fear Conditioning** (R03MH57260), Behavioral Science Track Award for Rapid Transition, National Institute of Mental Health, \$35,824. Role: PI

- 1997-2001 **Brain Mechanisms of Contextual Fear Conditioning**, *Preliminary Project Grant, Office of the Vice President for Research, University of Michigan, \$12,000.* Role: PI
- 1995-1996 **Synaptic Mechanisms of Pavlovian Fear Conditioning** (F32MH11061), *Individual National Research Service Award, National Institute of Mental Health, Department of Psychology, University of California.* Role: PI [Impact score:142, 22.9%]
- 1993-1995 **Training in Physiological Psychology** (F32MH15795), *Institutional National Research Service Award, National Institute of Mental Health, Department of Psychology, University of California.* Role: Appointee

## JOURNAL ARTICLES

[GOOGLE SCHOLAR: H=65, CITES=15,126; ISI HIGHLY CITED SCIENTIST (TOP 0.25%) IN NEUROSCIENCE & BEHAVIOR]

- (1) **Maren, S.** (2016). Parsing reward and aversion in the amygdala. *Neuron*, **90**:209-211.
- (2) Wang, Q., Jin, J., and **Maren, S.** (2016). Renewal of extinguished fear activates ventral hippocampal neurons projecting to the prelimbic and infralimbic cortices in rats. *Neurobiology of Learning and Memory*, 10.1016/j.nlm.2016.04.002 (epub ahead of print).
- (3) Goode, T. D., Leong, K. C., Goodman, J., **Maren, S.**, and Packard, M. G. (2016). Enhancement of striatum-dependent memory by conditioned fear is mediated by beta-adrenergic receptors in the basolateral amygdala. *Neurobiology of Stress*, **3**:74-82.
- (4) Giustino, T. J., Fitzgerald, P. J., and **Maren, S.** (2016). Revisiting propranolol and PTSD: Memory erasure or extinction enhancement? *Neurobiology of Learning and Memory*, **130**:26-33.. [Inaugural mini-review]
- (5) **Maren, S.** and Holmes, A. (2016). Stress and fear extinction. *Neuropsychopharmacology*, **4**:58-79. doi: 10.1038/npp.2015.180.
- (6) Jin, J. and **Maren, S.** (2015). Prefrontal-hippocampal interactions in memory and emotion. *Frontiers in Systems Neuroscience*, **9**:170. <http://dx.doi.org/10.3389/fnsys.2015.00170>
- (7) Giustino, T. F. and **Maren, S.** (2015). The role of the medial prefrontal cortex in the conditioning and extinction of fear. *Frontiers in Behavioral Neuroscience*, **9**:298. <http://dx.doi.org/10.3389/fnbeh.2015.00298>
- (8) **Maren, S.** (2015). Out with the old and in with the new: Synaptic mechanisms of extinction in the amygdala. *Brain Research*, **1621**: 231-238. doi: 10.1016/j.brainres.2014.10.010.
- (9) Nagaya, N., Acca, G. M., **Maren, S.** (2015). Allopregnanolone in the bed nucleus of the stria terminalis modulates contextual fear in rats. *Frontiers in Behavioral Neuroscience*, **9**:205. doi: 10.3389/fnbeh.2015.00205.
- (10) Goode, T. D., Kim, J. J., and **Maren, S.** (2015). Reversible inactivation of the bed nucleus of the stria terminalis prevents the reinstatement but not renewal of extinguished fear. *eNeuro*, **2**(3) e0037-15.2015 1–12. doi: 10.1523/ENEURO.0037-15.2015.
- (11) Nagaya, N. and **Maren, S.** (2015). Sex, steroids, and fear. *Biological Psychiatry*, **78**:152-3.
- (12) Fitzgerald, P. J., Giustino, T. F., Seemann, J. R., **Maren, S.** (2015). Noradrenergic blockade stabilizes prefrontal activity and enables fear extinction under stress. *Proceedings of the National Academy of Science USA*, **112**, E3729–E3737, doi: 10.1073/pnas.1500682112. \*Featured in JAMA (<http://jama.jamanetwork.com/article.aspx?articleid=2422534>)
- (13) **Maren, S.** (2015). Facing our fears. [Review of the book *Anxious: Using the Brain to Understand and Treat Fear and Anxiety*, by J. LeDoux]. *Science*, **349**:39. doi: 10.1126/science.aab3289.
- (14) Jin, J. and **Maren, S.** (2015). Fear renewal preferentially activates ventral hippocampal neurons projecting to both amygdala and prefrontal cortex in rats. *Scientific Reports*, **5**:8388. doi: 10.1038/srep08388.
- (15) Goode, T. D., Kim, J. J., and **Maren, S.** (2015). Relapse of extinguished fear after exposure to a dangerous context is mitigated by testing in a safe context. *Learning & Memory*, **22**:170-178.
- (16) Morrow, J., D., Saunders, B. T., **Maren, S.**, and Robinson, T. E. (2015). Sign-tracking to an appetitive cue predicts incubation of conditioned fear in rats. *Behavioural Brain Research*, **276**:59-66.
- (17) Goode, T. D. and **Maren, S.** (2014). Animal models of fear relapse. *ILAR Journal*, **55**:246-58.

- (18) **Maren, S.** (2014). Nature and causes of the immediate extinction deficit: a brief review. *Neurobiology of Learning and Memory*, 113:19-24.
- (19) **Maren, S.** (2014). Fear of the unexpected: Hippocampus mediates novelty-induced return of extinguished fear in rats. *Neurobiology of Learning and Memory*, 108:88-95.
- (20) Fitzgerald, P. J., Seemann, J. R., and **Maren, S.** (2014). Can fear extinction be enhanced? A review of pharmacological and behavioral findings. *Brain Research Bulletin*, 105:46-60.
- (21) **Maren, S.** (2013). Putting the brakes on fear. *Neuron*, 80:837-838.
- (22) Orsini, C. A., Yan, C., and **Maren, S.** (2013). Ensemble coding of context-dependent fear memory in the amygdala. *Frontiers in Behavioral Neuroscience*, 7(199):1-8.
- (23) **Maren, S.**, Phan, K. L., and Liberzon, I. (2013). The contextual brain: Implications for fear conditioning, extinction and psychopathology. *Nature Reviews Neuroscience*, 14:417-428. \*Identified as a "Hot Paper" (top 0.1% in last two years) and a "Highly Cited Paper" by *Essential Science Indicators* (top 1%).
- (24) Badrinarayan, A., Wescott, S. A., Vander Weele, C. M., Saunders, B. T. Couturier, B. E., **Maren, S.**, and Aragona, B. J. (2012). Aversive stimuli differentially modulate real-time dopamine transmission dynamics within the nucleus accumbens core and shell. *Journal of Neuroscience*, 32:15779-15790.
- (25) Orsini, C. A. and **Maren, S.** (2012). Neural and cellular mechanisms of fear and extinction memory formation. *Neuroscience and Biobehavioral Reviews*, 36:1773-802. \*Identified as a "Highly Cited Paper" by *Essential Science Indicators* (top 1%).
- (26) Knapska, E., Macias, M., Mikosz, M., Nowak, A., Owczarek, D., Wawrzyniak, M., Pieprzyk, M., Cymerman, I. A., Werka, T., Sheng, M., **Maren, S.**, Jaworski, J., Kaczmarek, L. (2012). Functional anatomy of neural circuits regulating fear and extinction. *Proceedings of the National Academy of Sciences*, 109:17093-17098.
- (27) Knox, D., George, S. A., Fitzpatrick, C. J., Rabinak, C. A., **Maren, S.** and Liberzon, I. (2012). Single prolonged stress disrupts retention of extinguished fear in rats. *Learning & Memory*, 19:43-49.
- (28) Orsini, C. A., Kim, J. H., Knapska, E. and **Maren, S.** (2011). Hippocampal and prefrontal projections to the basal amygdala mediate contextual regulation of fear after extinction. *Journal of Neuroscience*, 31:17269-77.
- (29) **Maren, S.** (2011). Seeking a spotless mind: Extinction, deconsolidation, and erasure of fear memory. *Neuron*, 70:830-45.
- (30) Chang, C. H. and **Maren, S.** (2011). Medial prefrontal cortical activation facilitates re-extinction of fear in rats. *Learning & Memory*, 18:221-225.
- (31) Morrow, J. D., **Maren, S.**, and Robinson, T. E. (2011). Individual variation in the propensity to attribute incentive salience to an appetitive cue predicts the propensity to attribute motivational salience to an aversive cue. *Behavioural Brain Research*, 220:238-243.
- (32) Zimmerman, J. M. and **Maren, S.** (2011). The bed nucleus of the stria terminalis is required for contextual but not auditory freezing in rats with basolateral amygdala lesions. *Neurobiology of Learning and Memory*, 95:199-205.
- (33) **Maren, S.** (2010). Breaking down fear memory. *European Journal of Neuroscience*, 31:2032.
- (34) Chang, C. H., Berke, J. D., and **Maren, S.** (2010). Single-unit activity in the medial prefrontal cortex during immediate and delayed extinction of fear in rats. *PLoS ONE*, 5(8). pii: e11971.
- (35) Chang, C. H. and **Maren, S.** (2010). Strain difference in the effect of infralimbic cortical lesions on fear extinction in rats. *Behavioral Neuroscience*, 124:391-397.
- (36) Zimmerman, J. M. and **Maren, S.** (2010). NMDA receptor antagonism in the basolateral but not central amygdala blocks the extinction of Pavlovian fear conditioning in rats. *European Journal of Neuroscience*, 31:1664-1670.
- (37) Knapska, E., Mikosz, M., Werka, T. F. and **Maren, S.** (2010). Social modulation of learning in rats. *Learning & Memory*, 17:35-42.
- (38) Jimenez, S. A. and **Maren, S.** (2009). Nuclear disconnection within the amygdala reveals a direct pathway to fear. *Learning & Memory*, 16:766-768.
- (39) Rabinak, C. A., Orsini C. A., Zimmerman, J. M. and **Maren, S.** (2009). The amygdala is not necessary for US inflation after Pavlovian fear conditioning in rats. *Learning & Memory*, 16:645-654.

- (40) Orsini, C. A. and **Maren, S.** (2009). Glutamate receptors in the medial geniculate nucleus are necessary for expression and extinction of conditioned fear in rats. *Neurobiology of Learning and Memory*, 92:581-589.
- (41) Knapska, E. and **Maren, S.** (2009). Reciprocal patterns of c-fos expression in the medial prefrontal cortex and amygdala after extinction and renewal of conditioned fear. *Learning & Memory*, 16:486-493.  
\*Featured as an 'Editor's Select' paper at Cold Spring Harbor Laboratory press.
- (42) Chang, C. H., Knapska, E., Orsini, C. A., Rabinak, C. A., Zimmerman, J. M., and **Maren, S.** (2009). Fear extinction in rodents. *Current Protocols in Neuroscience*, 8.23.
- (43) Chang, C. H. and **Maren, S.** (2009). Early extinction after fear conditioning yields a context-independent and short-term suppression of conditional freezing in rats. *Learning & Memory*, 16:62-68.
- (44) **Maren, S.** (2009). An acid-sensing channel sows fear and panic. *Cell*, 139:867-869.
- (45) Serrano, P., Friedman, E. L., Kenney, J., Taubenfeld, S. M., Zimmerman, J. M., Alberini, C., Kelley, A. E., **Maren, S.**, Rudy, J. W., Yin, J. C. P., Sacktor, T. C., and Fenton, A. A. (2008). PKM $\zeta$  maintains spatial, instrumental, and classically-conditioned long-term memories. *PLOS Biology*, 6:2698-2706.
- (46) Rabinak, C. A. and **Maren, S.** (2008). Associative structure of fear memory after basolateral amygdala lesions in rats. *Behavioral Neuroscience*, 122:1284-94.
- (47) **Maren, S.** (2008). Pavlovian fear conditioning as a behavioral assay for hippocampus and amygdala function: cautions and caveats. *European Journal of Neuroscience*, 28:1661-6.
- (48) Ji, J. and **Maren, S.** (2008). Lesions of the entorhinal cortex or fornix disrupt the context-dependence of fear extinction in rats. *Behavioural Brain Research*, 194:201-206.
- (49) Ji, J. and **Maren, S.** (2008). Differential roles for hippocampal areas CA1 and CA3 in the contextual encoding and retrieval of extinguished fear. *Learning & Memory*, 15:244-251.
- (50) Ji, J. and **Maren, S.** (2007). Hippocampal involvement in contextual modulation of fear extinction. *Hippocampus*, 17:749-758.
- (51) **Maren, S.** (2007). The threatened brain. *Science*, 317:1043-1044.
- (52) Zimmerman, J. M., Rabinak, C. A., McLachlan, I. G. and **Maren, S.** (2007). The central nucleus of the amygdala is essential for acquiring and expressing conditional fear after overtraining. *Learning & Memory*, 14:634-644.
- (53) **Maren, S.** and Hobin, J. A. (2007). Hippocampal regulation of context-dependent neuronal activity in the lateral amygdala. *Learning & Memory*, 14:318-324.
- (54) **Maren, S.** and Chang, C. H. (2006). Recent fear is resistant to extinction. *Proceedings of the National Academy of Sciences USA*, 103:18020-18025. \*Featured in "In this issue." *Proceedings of the National Academy of Sciences USA*, 103:17581-17582, "Research Highlights" *Nature Reviews Neuroscience*, 8:4, and *Journal Watch Psychiatry*, 1/8/07.
- (55) Venton, J. B., Robinson, T. E., and Kennedy, R. T., **Maren, S.** (2006). Dynamic increases in glutamate and GABA in the basolateral amygdala during acquisition and expression of conditioned fear. *European Journal of Neuroscience*, 23:3391-3398.
- (56) Bouton, M. E., Westbrook, R. F., Corcoran, K. A., and **Maren, S.** (2006). Contextual and temporal modulation of extinction: Behavioral and biological mechanisms. *Biological Psychiatry*, 60:352-360.  
\*Identified as a "Highly Cited Paper" by *Essential Science Indicators* (top 1%).
- (57) Merino, S. M. and **Maren, S.** (2006). Hitting Ras where it counts: Ras antagonism in the basolateral amygdala inhibits long-term fear memory. *European Journal of Neuroscience*, 23: 196-204.
- (58) Hobin, J. A., Ji, J. and **Maren, S.** (2006). Ventral hippocampal inactivation with muscimol disrupts context-specific fear memory retrieval. *Hippocampus*, 16:174-182.
- (59) Garcia, R., Chang, C. H., and **Maren, S.** (2006). Electrolytic lesions of the medial prefrontal cortex do not interfere with long-term memory of extinction of conditioned fear. *Learning & Memory*, 13:14-17.
- (60) Nagaya, H., **Maren, S.**, Nagaya, N. (2006). Allergy immunotherapy as an early intervention in patients with child-onset atopic asthma. *International Archives of Allergy and Immunology*, 139:9-15.
- (61) **Maren, S.** (2005). Synaptic mechanisms of associative memory in the amygdala. *Neuron*, 47:783-786.
- (62) Briand, L. A., Robinson, T. E., and **Maren, S.** (2005). Enhancement of auditory fear conditioning by environmental complexity is attenuated by prior amphetamine sensitization. *Learning & Memory*, 12:553-556.

- (63) **Maren, S.** (2005). Building and burying fear memories in the brain. *The Neuroscientist*, 11, 89-99.
- (64) Corcoran, K. A., Desmond, T. J., Frey, K. A. and **Maren, S.** (2005). Hippocampal inactivation disrupts the acquisition and contextual encoding of fear extinction. *Journal of Neuroscience*, 25:8978-8987.
- (65) Ji, J. and **Maren, S.** (2005). Electrolytic lesions of the dorsal hippocampus disrupt renewal of conditional fear after extinction. *Learning & Memory*, 12:270-276.
- (66) **Maren, S.** (2005). Central and basolateral amygdala neurons crash the aversive conditioning party: Theoretical comment on Rorick-Kehn and Steinmetz (2005). *Behavioral Neuroscience*, 119:1406-1410.
- (67) Corcoran, K. A. and **Maren, S.** (2004). Factors regulating the effects of hippocampal inactivation on renewal of fear after extinction. *Learning & Memory*, 11:598-603.
- (68) Goosens, K. A. and **Maren, S.** (2004). NMDA receptor blockade prevents the acquisition, but not expression, of conditional fear and associative spike firing in the lateral amygdala. *European Journal of Neuroscience*, 20:537-548. \*Featured by Jones, R. (2004). Learning to fear. *Nature Reviews Neuroscience*, 5:675.
- (69) **Maren, S.** and Quirk, G. J. (2004). Neuronal signalling of fear memory. *Nature Reviews Neuroscience*, 5:844-852. \*Identified as a "Highly Cited Paper" by *Essential Science Indicators* (top 1%).
- (70) Bhatnagar, S., Sun, L. M., Raber, J., **Maren, S.**, Julius, D., and Dallman, M. F. (2004). Changes in anxiety-related behaviors and hypothalamic-pituitary-adrenal activity in mice lacking the 5-HT-3A receptor. *Physiology & Behavior*, 81:545-555.
- (71) **Maren, S.** and Holt, W. G. (2004). Hippocampus and Pavlovian fear conditioning in rats: Muscimol infusions into the ventral, but not dorsal, hippocampus impair the acquisition of conditional freezing to an auditory conditional stimulus. *Behavioral Neuroscience*, 118:97-110.
- (72) **Maren, S.**, Ferrario, C., Corcoran, K. A., Desmond, T. J., Frey, K. (2003). Protein synthesis in the amygdala, but not the auditory thalamus, is required for Pavlovian fear conditioning in rats. *European Journal of Neuroscience*, 18:3080-3088.
- (73) Hobin, J. A., Goosens, K. A., and **Maren, S.** (2003). Context-dependent neuronal activity in the lateral amygdala represents fear memories after extinction. *Journal of Neuroscience*, 23:8410-8416.
- (74) **Maren, S.** (2003). The amygdala, synaptic plasticity, and fear memory. *Annals of the New York Academy of Sciences*, 985:106-113.
- (75) Goosens, K. A. and **Maren, S.** (2003). Pretraining NMDA receptor blockade in the basolateral complex, but not the central nucleus, of the amygdala prevents savings of conditional fear. *Behavioral Neuroscience*, 117:738-750.
- (76) Goosens, K. A., Hobin, J. A., and **Maren, S.** (2003). Auditory-evoked spike firing in the lateral amygdala and Pavlovian fear conditioning: Mnemonic code or fear bias? *Neuron*, 40:1013-1022.
- (77) **Maren, S.** (2003). What the amygdala does and doesn't do in aversive learning. *Learning & Memory*, 10:306-308.
- (78) Corcoran, K. A., Lu, Y., Turner, R. S. and **Maren, S.** (2002). Overexpression of *hAPP<sup>swe</sup>* impairs rewarded alternation and contextual fear conditioning in a transgenic mouse model of Alzheimer's disease. *Learning & Memory*, 9:243-252.
- (79) Goosens, K. A. and **Maren, S.** (2002). Long-term potentiation as a substrate for memory: evidence from studies of amygdaloid plasticity and Pavlovian fear conditioning. *Hippocampus*, 12:592-599.
- (80) Jones, D. M., Esmaeil, N., **Maren, S.**, Macdonald, R. L. (2002). Characterization of pharmacoresistance to benzodiazepines in the rat Li-pilocarpine model of status epilepticus. *Epilepsy Research*, 50:301-312.
- (81) **Maren, S.** (2001). Is there savings for Pavlovian fear conditioning after neurotoxic basolateral amygdala lesions in rats? *Neurobiology of Learning and Memory*, 76:268-283.
- (82) Goosens, K. A. and **Maren, S.** (2001). Contextual and auditory fear conditioning are mediated by the lateral, basal, and central amygdaloid nuclei in rats. *Learning & Memory*, 8:148-155.
- (83) **Maren, S.**, Yap, S. A., and Goosens, K. A. (2001). The amygdala is essential for the development of neuronal plasticity in the medial geniculate nucleus during auditory fear conditioning in rats. *Journal of Neuroscience*, 21:RC135 (1-6).
- (84) Corcoran, K. A. and **Maren, S.** (2001). Hippocampal inactivation disrupts contextual retrieval of fear memory after extinction. *Journal of Neuroscience*, 21:1720-1726.

- (85) **Maren, S.** (2001). Neurobiology of Pavlovian fear conditioning. *Annual Review of Neuroscience*, 24:897-931. \*Identified as a "Highly Cited Paper" by *Essential Science Indicators* (top 1%).
- (86) Gupta, R. R., Sen, S., Diepenhorst, L. L., Rudick, C., and **Maren, S.** (2001). Estrogen modulates sexually dimorphic contextual fear conditioning and hippocampal long-term potentiation (LTP) in rats. *Brain Research*, 888:356-365.
- (87) **Maren, S.** (2001). Stephen A. Maren – Award for Distinguished Scientific Early Career Contributions to Psychology. *American Psychologist*, 56:899-901.
- (88) Crombag, H., Badiani, A., **Maren, S.**, and Robinson, T. E. (2000). The role of contextual versus discrete cues associated with drug administration in the induction of psychomotor sensitization to intravenous amphetamine. *Behavioural Brain Research*, 116:1-22.
- (89) **Maren, S.** (2000). Auditory fear conditioning increases CS-elicited spike firing in lateral amygdala neurons even after extensive overtraining. *European Journal of Neuroscience*, 12:4047-4054. \*Featured in "Highlights" (2001). *Nature Reviews Neuroscience*, 2:3-9.
- (90) **Maren, S.** and Holt, W. (2000). The hippocampus and contextual memory retrieval in Pavlovian conditioning. *Behavioural Brain Research*, 110:97-108.
- (91) Goosens, K. A., Holt, W., and **Maren, S.** (2000). A role for amygdaloid PKA and PKC in the acquisition of conditional fear memories in rats. *Behavioural Brain Research*, 114:145-152.
- (92) **Maren, S.** (2000). Does the basolateral amygdala store memories for emotional events? Reply to Vazdarjanova. *Trends in Neurosciences*, 23:345-346.
- (93) Anagnostaras, S. G., **Maren, S.**, Sage, J. R., Goodrich, S., & Fanselow, M. S. (1999). Scopolamine and Pavlovian fear conditioning in rats: Dose-effect analysis. *Neuropsychopharmacology*, 21:731-744.
- (94) **Maren, S.** (1999). Long-term potentiation in the amygdala: a mechanism for emotional learning and memory. *Trends in Neurosciences*, 22:561-567.
- (95) Holt, W. and **Maren, S.** (1999). Muscimol inactivation of the dorsal hippocampus impairs contextual retrieval of fear memories. *Journal of Neuroscience*, 19:9054-9062.
- (96) **Maren, S.** (1999). Neurotoxic basolateral amygdala lesions impair learning and memory but not the performance of conditional fear in rats. *Journal of Neuroscience*, 19:8696-8703.
- (97) **Maren, S.** (1999). Neurotoxic or electrolytic lesions of the ventral subiculum produce deficits in the acquisition and expression of Pavlovian fear conditioning in rats. *Behavioral Neuroscience*, 113:283-290.
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- (76) Ji, J., Qian, A., and **Maren, S.** (2007). Dorsal hippocampal inactivation impairs disinhibition of extinguished fear by novel contexts. Program No. 426.27. 2007 Neuroscience Meeting Planner. San Diego, CA. *Society for Neuroscience*, 2007. Online.
- (77) Rabinak, C. A. and **Maren, S.** (2008). Protein synthesis within the central nucleus of the amygdala is necessary for reconsolidation of Pavlovian fear memories. *Annual Meeting of the Pavlovian Society*, Weehawken, NJ.
- (78) Orsini, C. A. and **Maren, S.** (2008). Glutamate receptor antagonism in the auditory thalamus blocks the expression and extinction of conditioned fear in rats. *Annual Meeting of the Pavlovian Society*, Weehawken, NJ.

- (79) Rabinak, C. A. and **Maren, S.** (2008). Protein synthesis within the central nucleus of the amygdala is necessary for consolidation of fear memories in rats with basolateral amygdala lesions. *Annual Meeting of the Pavlovian Society*, Weehawken, NJ.
- (80) Orsini, C. A. and **Maren, S.** (2008). Glutamate receptor antagonism in the auditory thalamus blocks the expression and extinction of conditioned fear in rats. Program No. 487.9. 2008 Neuroscience Meeting Planner, Washington, DC. *Society for Neuroscience*, 2008. Online.
- (81) Chang, C. H., Berke, J. D., and **Maren, S.** (2008). Simultaneous single-unit recordings in the medial prefrontal cortex and amygdaloid nuclei during the extinction of Pavlovian fear conditioning in rats. Program No. 487.14. 2008 Neuroscience Meeting Planner, Washington, DC. *Society for Neuroscience*, 2008. Online.
- (82) Knapska, E. and **Maren, S.** (2008). Reciprocal patterns of c-Fos expression in the medial prefrontal cortex and amygdala after extinction and renewal of conditioned fear in rats. Program No. 487.15. 2008 Neuroscience Meeting Planner, Washington, DC. *Society for Neuroscience*, 2008. Online.
- (83) Zimmerman, J. M. and **Maren, S.** (2008). The bed nucleus of the stria terminalis is not obligatory for the expression of conditioned fear in rats with lesions of the basolateral complex of the amygdala. Program No. 591.13. 2008 Neuroscience Meeting Planner, Washington, DC. *Society for Neuroscience*, 2008. Online.
- (84) Rabinak, C. A. and **Maren, S.** (2008). The basolateral amygdala is not necessary for US inflation after Pavlovian fear conditioning in rats. Program No. 591.14. 2008 Neuroscience Meeting Planner, Washington, DC. *Society for Neuroscience*, 2008. Online.
- (85) Jimenez, S. A. and **Maren, S.** (2008). Serial circuit between the basolateral complex and central nucleus of the amygdala mediates the expression of remote fear memories in rats. Program No. 591.15. 2008 Neuroscience Meeting Planner, Washington, DC. *Society for Neuroscience*, 2008. Online.
- (86) Morrow, J. D., **Maren, S.**, and Robinson, T. E. (2009). Individual differences in conditioned responses to appetitive cues predict the magnitude of conditioned responses to aversive cues. Program No. 99.3. 2009 Neuroscience Meeting Planner, Chicago, IL. *Society for Neuroscience*, 2009. Online.
- (87) Zimmerman, J. M. and **Maren, S.** (2009). NMDA receptors within the basolateral but not central amygdala are necessary for the acquisition of fear extinction in rats. Program No. 880.1. 2009 Neuroscience Meeting Planner, Chicago, IL. *Society for Neuroscience*, 2009. Online.
- (88) Orsini, C. A. and **Maren, S.** (2009). Disconnection of the basolateral amygdala and ventral hippocampus disrupts the renewal of fear after extinction. Program No. 880.2. 2009 Neuroscience Meeting Planner, Chicago, IL. *Society for Neuroscience*, 2009. Online.
- (89) Chang, C. H. and **Maren, S.** (2009). Prefrontal cortical rescue of fear extinction in rats. Program No. 880.3. 2009 Neuroscience Meeting Planner, Chicago, IL. *Society for Neuroscience*, 2009. Online.
- (90) Knapska, E. and **Maren, S.** (2009). Reciprocal patterns of c-Fos expression in the medial prefrontal cortex and amygdala after extinction and renewal of conditioned fear in rats. Program No. TV111.16. *9<sup>th</sup> International Congress of the Polish Neuroscience Society*, Warsaw, Poland.
- (91) Knapska, E., Mikosz, M., Sadowska, J., **Maren, S.**, and Werka, T. (2009). Social modulation of aversive learning in rats. Program No. TV111.14. *9<sup>th</sup> International Congress of the Polish Neuroscience Society*, Warsaw, Poland.
- (92) George, S. A., Knox, D., Khan, S., **Maren, S.**, and Liberzon, I. (2010). The effect of single prolonged stress, a rodent model of post-traumatic stress disorder on fear conditioning, extinction, and extinction recall. *65<sup>th</sup> Annual Convention of the Society of Biological Psychiatry. Biological Psychiatry*, 67, 30S-30S.
- (93) Badrinarayan, A., Wescott, S. A., **Maren, S.**, and Aragona, B. J. (2010). Real-time dopamine release in the nucleus accumbens after Pavlovian fear conditioning in rats. Program No. 713.15. 2010 Neuroscience Meeting Planner, San Diego, CA. *Society for Neuroscience*, 2010. Online.
- (94) Prater, K. E., Phan, K. L., and **Maren, S.** (2010). Systemic administration of the cannabinoid reuptake inhibitor AM404 facilitates extinction of conditional fear in rats. Program No. 808.26. 2010 Neuroscience Meeting Planner, San Diego, CA. *Society for Neuroscience*, 2010. Online.

- (95) Chang, C. H., Orsini, C. A., and **Maren, S.** (2010). Delayed, but not immediate, fear extinction induces Fos in basolateral amygdala interneurons. Program No. 808.27. 2010 Neuroscience Meeting Planner, San Diego, CA. *Society for Neuroscience*, 2010. Online.
- (96) Kim, J. H., Berke, J. D., and **Maren, S.** (2010). Neuronal activity in the nucleus accumbens and basolateral amygdala after Pavlovian fear conditioning in rats. Program No. 808.28. 2010 Neuroscience Meeting Planner, San Diego, CA. *Society for Neuroscience*, 2010. Online.
- (97) Orsini, C. A. and **Maren, S.** (2010). Disconnection of the ventral hippocampus and prelimbic cortex does not impair the renewal of extinguished fear in rats. Program No. 808.29. 2010 Neuroscience Meeting Planner, San Diego, CA. *Society for Neuroscience*, 2010. Online.
- (98) Morrow, J. D., **Maren, S.**, and Robinson, T. E. (2010). An animal model of vulnerability to comorbid post-traumatic stress disorder and addiction. Program No. 810.20. 2010 Neuroscience Meeting Planner, San Diego, CA. *Society for Neuroscience*, 2010. Online.
- (99) Badrinarayan, A., Berke, J. D., and **Maren, S.** (2011). Inactivation of the nucleus accumbens core impairs conditioned suppression in rats. Program No. 201.01. 2011 Neuroscience Meeting Planner, Washington, DC. *Society for Neuroscience*, 2011. Online.
- (100) Regmi, N. L., Orsini, C. A., **Maren, S.**, and Greene, R. W. (2011). Dysfunctional dorsal hippocampal NMDA receptors are sufficient to induce abnormal renewal of previously extinguished fear. Program No. 2012.24. 2011 Neuroscience Meeting Planner, Washington, DC. *Society for Neuroscience*, 2011. Online.
- (101) Orsini, C. A., Kim, J. H., and **Maren, S.** (2011). Hippocampal and prefrontal projections to the basolateral amygdala mediate contextual regulation of fear after extinction. Program No. 202.25. 2011 Neuroscience Meeting Planner, Washington, DC. *Society for Neuroscience*, 2011. Online.
- (102) Prater, K. E., Orsini, C. A., Phan, K. L., and **Maren, S.** (2012). Renewal of extinguished fear in a cue-shifted context in rats. Program No. 291.01. 2012 Neuroscience Meeting Planner, New Orleans, LA. *Society for Neuroscience*, 2012. Online.
- (103) Orsini, C. A., Yan, C., Josselyn, S., and Maren, S. (2012). Context-dependent neuronal ensembles on the amygdala, prelimbic cortex, and ventral hippocampus after fear extinction in rats. Program No. 291.02. 2012 Neuroscience Meeting Planner, New Orleans, LA. *Society for Neuroscience*, 2012. Online.
- (104) Sirieix, C. and **Maren, S.** (2012). Fear conditioning and extinction regulate the efficacy of prefrontal-amygdala excitability in rats. Program No. 291.03. 2012 Neuroscience Meeting Planner, New Orleans, LA. *Society for Neuroscience*, 2012. Online.
- (105) Maren, S. and Erickson, C. M. (2012). The effect of reactivating fear memory on the durability of extinction in rats. Program No. 291.04. 2012 Neuroscience Meeting Planner, New Orleans, LA. *Society for Neuroscience*, 2012. Online.
- (106) Morrow, J. D., **Maren, S.**, and Robinson, T. E. (2012). Pavlovian conditioned approach to reward predicts fear incubation. Program No. 422.11. 2012 Neuroscience Meeting Planner, New Orleans, LA. *Society for Neuroscience*, 2012. Online.
- (107) Goode, T. D. and **Maren, S.** (2013). Relapse of extinguished fear after exposure to a dangerous context in rats. *Conference on Learning & Memory*, University of Texas, Austin.
- (108) Acca, G., **Maren, S.**, and Nagaya, N. (2013). Allopregnanolone in the bed nucleus of the stria terminalis impairs acquisition and expression of contextual fear in male rats. *Annual Meeting of the Pavlovian Society*, Austin, TX.
- (109) Goode, T. D., Kim, J. J., and **Maren, S.** (2013). Exposure to a dangerous context results in the relapse of extinguished fear. *Annual Meeting of the Pavlovian Society*, Austin, TX.
- (110) Fitzgerald, P. J. and **Maren, S.** (2013). Modulation of single-neuron firing in medial prefrontal cortex by footshock stress in freely moving rats. *Annual Meeting of the Pavlovian Society*, Austin, TX.
- (111) Jin, J. and **Maren, S.** (2013). Fear renewal increases Fos expression in ventral hippocampal neurons projecting to both the medial prefrontal cortex and basal amygdala. *Annual Meeting of the Pavlovian Society*, Austin, TX.
- (112) Seemann, J. R., Fitzgerald, P. J., and **Maren, S.** (2013). Involvement of noradrenergic transmission in the immediate extinction deficit in rats. *Annual Meeting of the Pavlovian Society*, Austin, TX.

- (113) Acca, G., **Maren, S.**, and Nagaya, N. (2013). Allopregnanolone in the bed nucleus of the stria terminalis impairs expression of contextual fear in male rats. Program No. 81.14. 2013 Neuroscience Meeting Planner, San Diego, CA. *Society for Neuroscience*, 2013. Online.
- (114) Seemann, J. R., Fitzgerald, P. J., and **Maren, S.** (2013). Noradrenergic receptor modulation of the immediate extinction deficit in rats. Program No. 93.29. 2013 Neuroscience Meeting Planner, San Diego, CA. *Society for Neuroscience*, 2013. Online.
- (115) Goode, T. D., Kim, J. J., and **Maren, S.** (2013). Relapse of extinguished fear after exposure to a dangerous context in rats. Program No. 93.30. 2013 Neuroscience Meeting Planner, San Diego, CA. *Society for Neuroscience*, 2013. Online.
- (116) Prater, K. E., Aurbach, E. L., Larcinese, H., Blandino, P., Jr., Turner, C. A., Watson, S. J., **Maren, S.**, and Akil, H. (2013). Individual difference in rats selectively bred for locomotion in a novel environment affect fear conditioning and extinction behavior. Program No. 859.03. 2013 Neuroscience Meeting Planner, San Diego, CA. *Society for Neuroscience*, 2013. Online.
- (117) Prater, K. E., Aurbach, E. L., Blandino, P., Jr., Koelsch, A., Watson, S. J., **Maren, S.**, and Akil, H. (2013). *Wisconsin Symposium on Emotion*, University of Wisconsin, Madison, WI.
- (118) Prater, K. E., Chaudhury, S., Aurbach, E. A., Larcinese, H., Blandino, P., Jr., Turner, C. A., Watson, S. J., **Maren, S.**, and Akil, H. (2014). Rats selectively bred for locomotor response to a novel environment exhibit differences in fear conditioning and extinction behavior. *Society for Affective Science*, Washington, DC.
- (119) Prater, K. E., Aurbach, E. L., Larcinese, H., Turner, C. A., Blandino, P., Jr., Watson, S. J., **Maren, S.**, and Akil, H. (2014). Fibroblast growth factor 2 enhances the retention of extinction learning in resilient but not vulnerable rats bred for their locomotor response to novelty. Program No. 467.14. 2014 Neuroscience Meeting Planner, Washington, DC. *Society for Neuroscience*, 2014. Online.
- (120) Goodman, J., Leong, K.-C., Goode, T. D., **Maren, S.**, and Packard, M. (2014). Enhanced consolidation of habit memory by post-training exposure to a fear CS is blocked by propranolol administration. Program No. 468.21. 2014 Neuroscience Meeting Planner, Washington, DC. *Society for Neuroscience*, 2014. Online.
- (121) Giustino, T. F., Fitzgerald, P. J., and **Maren, S.** (2014). Noradrenergic blockade stabilizes medial prefrontal single-unit activity after footshock stress and reduces fear expression in rats. Program No. 746.06. 2014 Neuroscience Meeting Planner, Washington, DC. *Society for Neuroscience*, 2014. Online.
- (122) Wang, Q. and **Maren, S.** (2014). Renewal of extinguished fear induces Fos in ventral hippocampal neurons projecting to the medial prefrontal cortex. Program No. 746.07. 2014 Neuroscience Meeting Planner, Washington, DC. *Society for Neuroscience*, 2014. Online.
- (123) Seeman, J., Acca, G. M., and **Maren, S.** (2014). Does beta-adrenergic blockade in the medial prefrontal cortex or basolateral amygdala rescue the immediate extinction deficit? Program No. 746.08. 2014 Neuroscience Meeting Planner, Washington, DC. *Society for Neuroscience*, 2014. Online.
- (124) Goode, T. D., Kim, J. J., and **Maren, S.** (2014). Reversible inactivation of the bed nucleus of the stria terminalis blocks reinstatement but not renewal of extinguished fear. Program No. 748.08. 2014 Neuroscience Meeting Planner, Washington, DC. *Society for Neuroscience*, 2014. Online.
- (125) Acca, G. M., **Maren, S.**, and Nagaya, N. (2014). Allopregnanolone in the bed nucleus of the stria terminalis modulates sexually dimorphic contextual fear in rats. Program No. 748.09. 2014 Neuroscience Meeting Planner, Washington, DC. *Society for Neuroscience*, 2014. Online.
- (126) Jin, J. and **Maren, S.** (2014). Subicular and CA1 neurons projecting to the medial prefrontal cortex and basal amygdala exhibit context-dependent Fos expression after renewal of extinguished fear. Program No. 754.03. 2014 Neuroscience Meeting Planner, Washington, DC. *Society for Neuroscience*, 2014. Online.
- (127) Prater, K. E., Aurbach, E. L., Larcinese, H., Blandino, P., Jr., Watson, S. J., **Maren, S.**, and Akil, H. (2015). Learning in the company of individuals with similar phenotype facilitates fear extinction in both outbred rats and rats bred for their locomotor response to novelty. *Wisconsin Symposium on Emotion*, University of Wisconsin, Madison, WI.



- (128) Goode, T. D., Jin, and **Maren, S.** (2015). Combinatorial DREADD silencing of ventral hippocampal neurons projecting to infralimbic cortex prevents fear renewal. *UT Austin Conference on Learning & Memory*, Center for Learning and Memory, University of Texas, Austin, TX. **\*\*Selected for 'Best Abstract Award' and presented as a talk**
- (129) Giustino, T. F., Fitzgerald, P. J., Seemann, J. R., and **Maren, S.** (2015). Noradrenergic blockade stabilizes prefrontal activity and enables fear extinction under stress. *UT Austin Conference on Learning & Memory*, Center for Learning and Memory, University of Texas, Austin, TX.
- (130) Acca, G. M., **Maren, S.**, and Nagaya, N. (2015). State-dependent effects of allopregnanolone on contextual fear learning. *UT Austin Conference on Learning & Memory*, Center for Learning and Memory, University of Texas, Austin, TX.
- (131) Fitzgerald, P. J., Giustino, T. F., and **Maren, S.** (2015). Nonassociative inhibition of conditional fear engages the medial prefrontal cortex in rats. No. 175.11. 2015 Neuroscience Meeting Planner, Chicago, IL. *Society for Neuroscience*, 2015. Online.
- (132) Giustino, T. F., Fitzgerald, P. J., **Maren, S.** (2015). Propranolol modulates medial prefrontal cortical activity and enhances extinction after recent fear. No. 175.10. 2015 Neuroscience Meeting Planner, Chicago, IL. *Society for Neuroscience*, 2015. Online.
- (133) Jin, J., Wang, Q., and **Maren, S.** (2015). Reversible inactivation of the nucleus reuniens of the midline thalamus disrupts fear suppression after extinction. No. 175.09. 2015 Neuroscience Meeting Planner, Chicago, IL. *Society for Neuroscience*, 2015. Online.
- (134) Wang, Q., Acca, G. M., Ninan, D. J., and **Maren, S.** (2015). GABAA receptors in the infralimbic cortex regulate both the expression of extinction and renewal of fear in rats. No. 175.08. 2015 Neuroscience Meeting Planner, Chicago, IL. *Society for Neuroscience*, 2015. Online.
- (135) Acca, G. M., Tsao, B., Jin, J., Fu, C., **Maren, S.**, and Nagaya, N. (2015). Differential effects of allopregnanolone in the basolateral amygdala and bed nucleus of the stria terminalis on Pavlovian fear conditioning in rats. No. 175.07. 2015 Neuroscience Meeting Planner, Chicago, IL. *Society for Neuroscience*, 2015. Online.
- (136) Goode, T. D., Jin, J., Holehonnur, R., Ploski, J. E., and Maren, S. (2015). Combinatorial DREADD silencing of ventral hippocampal neurons projecting to infralimbic cortex prevents fear renewal. No. 175.12. 2015 Neuroscience Meeting Planner, Chicago, IL. *Society for Neuroscience*, 2015. Online.
- (137) Prater, K. E., Aurbach, E. L., Larcinese, H., Blandino, P., Jr., Watson, S. J., **Maren, S.**, and Akil, H. (2015). Learning in the company of individuals with similar phenotype facilitates fear extinction in both outbred rats and rats bred for their locomotor response to novelty. No. 615.14. 2015 Neuroscience Meeting Planner, Chicago, IL. *Society for Neuroscience*, 2015. Online.
- (138) Gorka, S.M., Rabinak, C.A., Milad, M.R., Liberzon, I., **Maren, S.**, Phan, K.L. (2015). Effects  $\Delta 9$ -tetrahydrocannabinol (THC) on brain and behavior during fear extinction learning in humans: A combined psychophysiological-fMRI study. Poster presented at the annual meeting of the American College of Neuropsychopharmacology, Hollywood, FL.
- (139) Errante, E., Assudani Patel, S., Racki, A. Kuhney, F. Mehndriratta, A., Padua, M., **Maren, S.**, and Astur, R. S. (2016). Fear within virtual reality environments. Poster presented at the Eastern Psychological Association, New York, NY.

## INVITED TALKS

- (1) **Maren, S.** (1994). Hippocampal integration of motivation and learning: Parallel augmentation of fear conditioning, hippocampal LTP, and glutamate receptor binding in water-deprived rats. *Department of Psychobiology, University of California*. Irvine, CA.
- (2) **Maren, S.** (1995). Behavioral correlates of hippocampal long-term potentiation. *Department of Psychology, University of Michigan*. Ann Arbor, MI.
- (3) **Maren, S.** (1995). Behavioral correlates of hippocampal long-term potentiation. *Department of Psychology, University of California-San Diego*. La Jolla, CA.

- (4) **Maren, S.** (1995). Behavioral correlates of hippocampal long-term potentiation. *Department of Psychology, Johns Hopkins University*. Baltimore, MD.
- (5) **Maren, S.** (1998). Water deprivation augments hippocampal LTP and contextual fear conditioning in rats. *Spring Hippocampal Research Conference*. Grand Cayman, BWI.
- (6) **Maren, S.** (1998). The hippocampus and contextual memory retrieval in Pavlovian fear conditioning. *Annual Meeting of the Pavlovian Society*. Düsseldorf, Germany.
- (7) **Maren, S.** (1998). Neuronal mechanisms of emotional learning and memory. *Department of Psychology, Michigan State University*. East Lansing, MI.
- (8) **Maren, S.** (2000). Engrams in the Amygdala. *The Engram Found: A Celebration of the Scientific Contributions of Richard F. Thompson, University of Southern California*. Los Angeles, CA.
- (9) **Maren, S.** (2001). Synaptic plasticity in the amygdala and emotional learning and memory. *Neurotoxicology Division, United States Environmental Protection Agency*. Research Triangle Park, NC.
- (10) **Maren, S.** (2001). Neurobiology of emotional learning and memory. *Neuroscience Program, University of Utah*. Salt Lake City, UT.
- (11) **Maren, S.** (2001). Amygdaloid LTP and Fear Memory. *LTP Explained: Molecular, Cellular, Behavioral, and Computational Aspects, University of Angers, Angers, France*.
- (12) **Maren, S.** (2001). Neurobiology of Pavlovian fear conditioning. *Ernest Gallo Clinic and Research Center and University of California*. Emeryville, CA.
- (13) **Maren, S.** (2002). Fear memory circuits in the brain. *Neuroscience Program, Indiana University*. Bloomington, IN.
- (14) **Maren, S.** (2002). Synaptic plasticity in the amygdala. *The Amygdala in Brain Function: Basic and Clinical Approaches, New York Academy of Sciences*. Galveston, TX.
- (15) **Maren, S.** (2002). Hippocampus and contextual memory retrieval. *Kalamazoo College Symposium on Interdisciplinary Approaches to Neuroscience: The Hippocampus, Kalamazoo College*. Kalamazoo, MI.
- (16) **Maren, S.** (2002). Fear memory circuits in the brain. *Department of Psychology and Department of Cellular and Clinical Neurobiology, Wayne State University*. Detroit, MI.
- (17) **Maren, S.** (2003). Fear memory circuits in the brain. *Mouse Behavioral Analysis Course, Cold Spring Harbor Laboratory, Cold Spring Harbor, NY*.
- (18) **Maren, S.** (2004). Building and burying fear memories in the brain. *Center of Biomedical Research Excellence (COBRE) Neuroscience Seminar Series, University of Vermont, Burlington, VT*.
- (19) **Maren, S.** (2004). Building and burying fear memories in the brain. *American Psychological Association, Honolulu, HI*.
- (20) **Maren, S.** (2004). Hitting Ras where it counts: Ras antagonism in the basolateral amygdala impairs long-term fear memory. *Molecular and Cellular Cognition Society, San Diego, CA*.
- (21) **Maren, S.** (2005). The central nucleus of the amygdala is essential for the expression of conditional fear in rats with basolateral complex lesions. *50<sup>th</sup> Annual Meeting of the Pavlovian Society, Anaheim, CA*.
- (22) **Maren, S.** (2005). Neuronal coding of fear memory in the amygdala. *Michigan Mathematical Biology Conference, University of Michigan, Ann Arbor, MI*.
- (23) **Maren, S.** (2005). Building and burying fear memories in the brain. *Center for Learning and Memory, University of Texas, Austin, TX*.
- (24) **Maren, S.** (2006). Building and burying fear memories in the brain. *Program in Neuroscience, Boston University, Boston, MA*.
- (25) **Maren, S.** (2006). Context and time regulate fear extinction in rats. *Mind-Brain Seminar series, Department of Physiology, Ponce School of Medicine, Ponce, Puerto Rico*.
- (26) **Maren, S.** (2006). Neurobiology of fear memory: What next? *Center for Learning and Memory, University of Texas, Austin, TX*.
- (27) **Maren, S.** (2006). Context and time regulate fear extinction in rats. *Center for Neuroscience, University of Pittsburgh, Pittsburgh, PA*.
- (28) **Maren, S.** (2007). Neurobiology of fear memory: concepts and challenges. *Gordon Research Conference: The Amygdala in Health and Disease, Bates College, Lewiston, ME*.

- (29) **Maren, S.** (2008). Fear and the brain. *Michigan Research Community*, University of Michigan, Ann Arbor, MI.
- (30) **Maren, S.** (2008). Neuronal circuits for fear extinction. *28<sup>th</sup> Annual Meeting of the Anxiety Disorders Association of America*, Savannah, GA.
- (31) **Maren, S.** (2008). Building and burying fear memories in the brain. *Annual Meeting of the Canadian College of Neuropsychopharmacology*, Toronto, Canada.
- (32) **Maren, S.** (2008). Building and burying fear memories in the brain. *Annual Meeting of the Federation of European Neuroscience Societies (FENS)*, Geneva, Switzerland.
- (33) **Maren, S.** (2008). Animal models of severe stress: Relevance to PTSD. *20<sup>th</sup> Annual Advances in Psychiatry Conference: Trauma, Stress and Anxiety*. Department of Psychiatry, University of Michigan, Ann Arbor, MI.
- (34) **Maren, S.** (2009). Neural circuits for fear memory and extinction. *Neuroscience Seminar*, Department of Physiology and Neuroscience Program, Northwestern University, Chicago, Illinois.
- (35) **Maren, S.** (2009). Context and time regulate fear extinction. *Gordon Research Conference: The Amygdala in Health and Disease*, Colby College, Waterville, ME.
- (36) **Maren, S.** (2010). Animal models of fear extinction: Relevance to clinical interventions. Department of Psychiatry, *Grand Rounds*, University of Michigan, Ann Arbor, MI.
- (37) **Maren, S.** (2010). Neurobiology of learning and memory. Department of Neurology, *Basic Science Conference*, University of Michigan, Ann Arbor, MI.
- (38) **Maren, S.** (2011). Freezing? It depends. Contextual regulation of fear extinction. *44<sup>th</sup> Annual Winter Conference on Brain Research*, Keystone, CO.
- (39) **Maren, S.** (2011). Neurocircuitry of fear extinction. *Grand Rounds*, Department of Psychiatry, University of Texas Southwestern Medical School, Dallas, TX.
- (40) **Maren, S.** (2011). Neural circuit for fear renewal. *10<sup>th</sup> International Congress of the Polish Neuroscience Society*, Lodz, Poland.
- (41) **Maren, S.** (2012). Brain control of fear. *TAMIN Seminar Series*, Texas A&M University, College Station, TX.
- (42) **Maren, S.** (2013). Brain control of fear. *Neuroscience Symposium*, University of Texas, Austin, TX.
- (43) **Maren, S.** (2013). Brain control of fear. *Pharmacology Seminar Series*, Department of Pharmacology, University of Texas Health Science Center, San Antonio, TX.
- (44) **Maren, S.** (2013). Brain control of fear. *Summer Seminar Series*, Health Science Center, Texas A&M University, College Station, TX.
- (45) **Maren, S.** (2013). Nature and causes of the immediate extinction deficit. *Gordon Research Conference: The Amygdala in Health and Disease*, Stonehill College, Easton, MA.
- (46) **Maren, S.** (2013). Reciprocal neural circuits for excitation and inhibition of fear. *1<sup>st</sup> Nencki Symposium on: Jerzy Konorski Contribution to Modern Neuroscience*, Warsaw, Poland.
- (47) **Maren, S.** (2013). Brain control of fear. *First-Year Seminar*, Department of Psychology, Texas A&M University, College Station, TX.
- (48) **Maren, S.** (2013). Brain control of fear. *Extinction Learning: Neural Mechanisms, Behavioural Manifestations, and Clinical Implications*, Young Scientists Symposium, Ruhr University, Bochum, Germany.
- (49) **Maren, S.** (2014). Contextualizing fear in the amygdala. *26<sup>th</sup> Annual Winter Conference on Neural Plasticity*, Vieques Island, Puerto Rico.
- (50) **Maren, S.** (2014). Brain circuits for the contextual control of fear. *Leaton Lecture*, Department of Brain and Psychological Sciences, Dartmouth University, Hanover, New Hampshire.
- (51) **Maren, S.** (2014). DREADDing fear relapse. *Behavioral Neuroscience Colloquium*, Department of Psychology, University of Texas, Austin, TX.
- (52) **Maren, S.** (2014). Stabilizing extinction under stress. *Pavlovian Society*, Seattle, WA.
- (53) **Maren, S.** (2014). Stabilizing extinction under stress. *UNAM Learning and Memory Meeting*, Juriquilla, Queretaro, Mexico.
- (54) **Maren, S.** (2015). Stabilizing fear extinction under stress. *Richard L. Solomon Distinguished Lecture*, Eastern Psychological Association, Philadelphia, PA.

- (55) **Maren, S.** (2015). Stabilizing fear extinction under stress. *Neuroscience Program*, Michigan State University, East Lansing, MI.
- (56) **Maren, S.** (2015). Neural circuits for extinction and renewal of conditioned fear. *School of Behavioral and Brain Sciences*, University of Texas at Dallas, Richardson, TX.
- (57) **Maren, S.** (2015). Does the infralimbic cortex inhibit fear after extinction? *Gordon Research Conference: The Amygdala in Health and Disease*, Stonehill College, Easton, MA.
- (58) **Maren, S.** (2015). Stabilizing fear extinction under stress. *Rutgers University, Brain Health Institute*, Plenary Seminar Series, New Brunswick, NJ.
- (59) **Maren, S.** (2016). Prefrontal-cortical interplay in contextual memory retrieval. *28th Annual Winter Conference on Neural Plasticity*, Maui, HI.
- (60) **Maren, S.** (2016). Stabilizing fear extinction under stress. *Neuroscience Institute Seminar Series*, University of Tennessee Health Science Center, Memphis, TN.
- (61) **Maren, S.** (2016). BNST regulation of fear-induced relapse. *Neuroscience Institute Seminar Series*, Vanderbilt University, Nashville, TN.

## CLASSROOM TEACHING

### Texas A&M University:

- Spring 2016 *Drugs and Behavior* (Psychology/Neuroscience 336), Undergraduate course (20 students)
- Fall 2015 *Drugs and Behavior* (Psychology/Neuroscience 336), Undergraduate course (20 students)
- Spring 2015 *Drugs and Behavior* (Psychology/Neuroscience 336), Undergraduate course (16 students)
- Spring 2015 *Behavioral and Cellular Neuroscience Seminar* (Psychology 635), Graduate research seminar (5 students)
- Fall 2014 *Drugs and Behavior* (Psychology/Neuroscience 336), Undergraduate course (16 students)
- Fall 2014 *Behavioral and Cellular Neuroscience Seminar* (Psychology 635), Graduate research seminar (8 students)
- Spring 2013 *Behavioral and Cellular Neuroscience Seminar* (Psychology 635), Graduate research seminar (7 students)
- Fall 2013 *Behavioral and Cellular Neuroscience Seminar* (Psychology 635), Graduate research seminar (8 students)
- Spring 2012 *Behavioral and Cellular Neuroscience Seminar* (Psychology 635), Graduate research seminar (6 students)
- Fall 2012 *Behavioral and Cellular Neuroscience Seminar* (Psychology 635), Graduate research seminar (10 students)

### University of Michigan:

- Fall 2009 *Biopsychology of Learning and Memory* (Psychology 434), Undergraduate lecture (100 students)
- Winter 2009 *Introduction to Biopsychology* (Psychology 230), Undergraduate course with discussion (300 students)
- Fall 2007 *Brain, Learning, and Memory* (University Course 261/Psychology 231), Undergraduate course with laboratory; taught with John Jonides and Joshua Berke (75 students)
- Fall 2006 *Brain, Learning, and Memory* (University Course 261/Psychology 231), Undergraduate course with laboratory; taught with John Jonides and Joshua Berke (75 students)
- Winter 2006 *Introduction to Biopsychology*, (Psychology 230), Undergraduate course with discussion (300 students)
- Fall 2005 *Brain, Learning, and Memory* (University Course 261/Psychology 231), Undergraduate course with laboratory; taught with John Jonides (75 students)
- Winter 2005 *Biopsychology of Learning and Memory* (Psychology 831), Graduate seminar (10 students)
- Fall 2004 *Brain, Learning, and Memory* (University Course 261/Psychology 231), Undergraduate course with laboratory; taught with John Jonides (75 students)

- Fall 2003 *Brain, Learning, and Memory* (University Course 261/Psychology 231), Undergraduate course taught with laboratory; taught with John Jonides and Hylan Moises (75 students)
- Fall 2002 *Brain, Learning, and Memory* (University Course 261/Psychology 231), Undergraduate course with laboratory; taught with John Jonides and Hylan Moises (75 students)
- Winter 2002 Sabbatical
- Fall 2001 *Brain, Learning, and Memory* (University Course 261/Psychology 231), Undergraduate laboratory course with laboratory; taught with John Jonides and Hylan Moises (75 students)
- Winter 2001 *Neurobiology of Learning and Memory* (Neuroscience 602/615), One of three lecture modules for the neuroscience graduate core course (15 students)
- Winter 2000 *Neurobiology of Learning and Memory* (Neuroscience 602/615), One of three lecture modules for the neuroscience graduate core course (15 students)
- Fall 2000 *Biopsychology of Learning and Memory* (Psychology 531), Undergraduate seminar (30 students)
- Fall 2000 *Biopsychology of Learning and Memory* (Psychology 831), Graduate seminar (5 students)
- Winter 2000 *Introduction to Biopsychology*, (Psychology 330), Undergraduate course with discussion (300 students)
- Fall 1999 Pre-tenure leave
- Winter 1999 *Neurobiology of Learning and Memory* (Neuroscience 602/615), One of three lecture modules for the neuroscience graduate core course (15 students)
- Winter 1999 *Introduction to Biopsychology*, (Psychology 330), Undergraduate course with discussion (300 students)
- Fall 1998 *Laboratories in Biopsychology* (Psychology 331), Undergraduate laboratory course: seminar (45 students)
- Winter 1998 *Introduction to Biopsychology*, (Psychology 330), Undergraduate course with laboratory (300 students)
- Fall 1997 *Biopsychology of Learning and Memory* (Psychology 531), Undergraduate seminar (30 students)
- Winter 1997 *Introduction to Biopsychology*, (Psychology 330), Undergraduate course with discussion (300 students)
- Fall 1996 *Biopsychology of Learning and Memory* (Psychology 831), Graduate seminar (10 students)

## RESEARCH MENTORING

### Postdoctoral Fellows

#### Texas A&M University:

2012-pres **Paul Fitzgerald, PhD** (Johns Hopkins University)

#### University of Michigan:

2012-2013 **Crystal M. Erickson, PhD** (University of Texas-Dallas). *Currently a Surgical Electrophysiologist, ProNerve, LLC.*

2011-2012 **Chrystelle Sirieix, PhD** (University of Lyon). *Currently a Postdoctoral Fellow in the Department of Physiology and Neurobiology, Dartmouth University.*

2010-2011 **Jee-hyun Kim, PhD** (University of New South Wales). *Currently a DECRA Fellow and Assistant Professor in the Florey Institute of Neuroscience and Mental Health, University of Melbourne, Australia.*

2009-2010 **Chun-hui Chang, PhD** (University of Michigan). *Currently a Postdoctoral Fellow in the Department of Neuroscience, University of Pittsburgh; will be appointed (F2015) an Assistant Professor, Institute of Systems Neuroscience, National Tsing Hua University, Taiwan.*

2008-2010 **Ewelina Knapska, PhD** (Nencki Institute, Warsaw). *Currently an Assistant Professor and Head of the Emotions Laboratory, Nencki Institute of Experimental Biology, Warsaw, Poland.*

2005-2008 **Jinzhao Ji, MD, PhD** (Shanghai Institute of Physiology). *Currently in private medical practice.*

### Graduate Students (chair)

#### Texas A&M University:

- 2013-pres **Thomas Giustino**, Neuroscience Program  
 2013-pres **Qian (Angie) Wang**, Department of Biology  
 2012-pres **Gillian Acca**, Neuroscience Program  
 2012-pres **Travis D. Goode**, Neuroscience Program  
 2012-pres **Jingji Jin**, Neuroscience Program  
 2012-2014 **Janice J. Kim, MS**, Department of Psychology, "Reversible inactivation of the bed nucleus of the stria terminalis blocks reinstatement but not renewal of extinguished fear".

#### **University of Michigan:**

- 2007-2012 **Caitlin A. Orsini, PhD**, Department of Psychology, "Neural circuitry underlying contextual regulation of fear after extinction," 2007-2012. *Currently a Postdoctoral Fellow in the Department of Psychiatry, University of Florida.*
- 2005-2010 **Joshua M. Zimmerman, PhD**, Neuroscience Program, "Compensatory neural circuits for fear learning without the basolateral amygdala," 2005-2010. *Currently a Data Analyst, Bloomberg NYC.*
- 2005-2009 **Chun-hui Chang, PhD**, Department of Psychology, "Extinction of recent fear: Behavioral and neural mechanisms," 2005-2009. *Currently a Postdoctoral Fellow in the Department of Neuroscience, University of Pittsburgh; will be appointed in Fall 2015 as Assistant Professor, Institute of Systems Neuroscience, National Tsing Hua University, Taiwan.*
- 2004-2009 **Christine A. Rabinak, PhD**, Department of Psychology, "The associative representation of fear memories mediated by the amygdala," 2004-2009. *Currently an Assistant Professor, Department of Pharmacy Practice, Wayne State University.*
- 2000-2005 **Jennifer A. Hobin, PhD**, Department of Psychology, "Neural circuits for context-specific expression of pavlovian fear memory after extinction," 2001-2006. *Currently a Science Policy Director, National Institute of Drug Abuse.*
- 1999-2004 **Kevin A. Corcoran, PhD**, Department of Psychology, "Participation of the dorsal hippocampus in the acquisition, expression, and context-dependency of extinction of learned fear," 1999-2004. *Currently a Postdoctoral Fellow in the Department of Psychiatry, Northwestern University.*
- 1997-2002 **Ki A. Goosens, PhD**, Department of Psychology, "Conditional plasticity in the amygdala: Substrates, molecular mechanisms, and the relationship to fear behavior," 1997-2002.. *Currently an Assistant Professor in Brain and Cognitive Sciences and the McGovern Institute, Massachusetts Institute of Technology.*

#### **Doctoral Students (committee member)**

Texas A&M University: Sean Bates (Eitan), Neuroscience Program; Kah-Chung Leong (Packard), Department of Psychology, Jarid Goodman (Packard), Department of Psychology. University of Michigan: Katherine Prater (Akil), Neuroscience Program; Howard Gritton (Sarter), Neuroscience Program; Stephanie Jimenez (Murphy), Neuroscience Program; Adam Iliff (Sutton), Neuroscience Program; Stephen V. Mahler (Berridge), Department of Psychology; Lisa A. Briand (Robinson), Neuroscience Program; Theresa Bjorness (Poe), Neuroscience Program; Christine Walsh (Poe), Neuroscience Program; Brandon McKinney (Murphy), Neuroscience Program and MSTP; Javier Perez (Akil), Neuroscience Program; Keith Sudheimer (Liberzon), Neuroscience Program; Timothy Marzullo (Kipke), Neuroscience Program; Chen-chung Lee (Middlebrooks), Neuroscience Program; Tyler Brown (Esteban), Neuroscience Program; Carrie Ferrario (Robinson), Neuroscience Program; Margaret Campbell (Therrien), Nursing; Pat Simen (Polk), EECS; Esther Bay (Therrien), Nursing; Kaitlin Browman (Robinson), Department of Psychology; Hans Crombag (Robinson), Department of Psychology; Esther Bay (Therrien), Nursing

#### **Doctoral Students (outside member or reader)**

Outside member: Davie Bailey (Wade), Department of Psychology, Michigan State University; Deanna Buffalari (Grace), Department of Neuroscience, University of Pittsburgh. Outside reader: Anthony Good (Westbrook), Department of Psychology, University of New South Wales, Australia; Tatiana Harambolous (Westbrook), Department of Psychology, University of New South Wales, Australia; Matthew Holahan (White), McGill University, Canada; Mihaela Iordanova (McNally), Department of Psychology, University of New South Wales,

Australia; Laura Bradfield (Richardson), Department of Psychology, University of New South Wales, Australia; Wan Yee Macy Chan (McNally), Department of Psychology, University of New South Wales, Australia.

### Undergraduate Research Assistants

Texas A&M University: Rachel Dorn, John Spikes, II, Eboni Johnson, Tyler Vintila, Dencil Ninan, Rebecca Loshelder, Barbara Tsao, Christina Hu. University of Michigan: Michael Kia, Lisa Randazzo, Lisa Diepenhorst, Rishi Gupta, Ryan Swan, Monique Mandrea, Heather Tracy, Brian Song, Jennifer Talarico, Rodrigo Salazarr, Geanbry Demming, Stanley Yap, Bryan Faller, Ann Falk, Chris Kobet, Kelley Kozma, Joy Limpuangthip, Jamie Rosenman, Pavani Guntur, Erin Eaylward, Sanjeeva Wiljejesakere, Elizabeth Peterson, Omry Maoz, Payal Mittal, Patricia Welsh, Kamal Fahim, Graham Newman, Andrea Lubaway, Megan Ring, Mary Beth Harris, Michelle Sommers, Erica Hirsch, Elizabeth Dixon, April Qian, Kim Remski, Ian Maclachlan, Stephanie Jimenez, Destiny Carrillo, Natalie Mandel, Gordon Shott, Yasha Rastgar, Dev Shah, Danielle Robinett, Sierra Stringfield

### Trainee Awards and Honors

**Stanley A. Yap**, Pillsbury Award (best undergraduate honors thesis in Psychology), University of Michigan, 1999.  
**Ki A. Goosens**, Howard Hughes Pre-Doctoral Fellowship (1998), Barbara A. Oleshansky Award (2000), Wyvell Award (2002, best dissertation in biopsychology), Marquis Award (2002, best dissertation in psychology), Rackham Distinguished Dissertation Award (2002, best dissertation at the University of Michigan), National Cattell Award finalist (best psychology dissertation in the US).  
**Kevin A. Corcoran**, National Science Foundation fellowship (1999), Sigma Xi Grants-in-Aid-of-Research (2002).  
**Jennifer A. Hobin**, National Defense Science and Engineering graduate fellowship (2001).  
**Christine A. Rabinak**, American Psychological Association Dissertation Fellowship (2008)  
**Caitlin A. Orsini**, National Science Foundation, Honorable Mention in Graduate Research Fellowship Competition (2008). Awarded a National Research Service Award (2010-2012) and American Psychological Association Dissertation Fellowship (2010).  
**Travis D. Goode**, National Science Foundation, Honorable Mention in Graduate Research Fellowship Competition (2013).

### PROFESSIONAL SERVICE

#### **Editorial Service:**

**Editor-in-Chief** *Behavioural Brain Research* (2010-present)  
**Editorial Board** *Neuroscience & Biobehavioral Reviews* (2003-present)

#### **Past Editorial Service:**

**Associate Editor:** *Frontiers in Behavioral Neuroscience* (2008-2009)  
*Cognitive, Affective, and Behavioral Neuroscience* (2001-2007)  
**Editorial Board Member:** *Behavioural Brain Research* (2005-2010)  
*Neural Plasticity* (2006-2008)  
*Debates in Neuroscience* (2006-2008)

**Ad-hoc journal review:** *Science, Cell, Neuron, Nature Neuroscience, Journal of Neuroscience, Scientific Reports, Biological Psychiatry, Behavioral Neuroscience, European Journal of Neuroscience, Learning & Memory, Neurobiology of Learning and Memory, Neuroscience, Psychopharmacology*

#### **Grant Review Committees:**

2007-2015 **Member**, *Special Emphasis Panel IRGs*, Center for Scientific Review, National Institute of Mental Health  
2003-2007 **Member**, *Neurobiology of Learning and Memory (LAM) IRG*, Center for Scientific Review, National Institute of Mental Health

- 2003 **Member**, *Special Emphasis Panel IRG (IFCN-4)*, Center for Scientific Review, National Institute of Mental Health
- 2003 **Temporary Member**, *Integrative, Functional, Cognitive Neuroscience IRG (IFCN-7)*, Center for Scientific Review, National Institute of Mental Health
- 2001 **Member**, *Special Emphasis Panel (F31s and F32s) IRG (ZRG01 F02A)*, Center for Scientific Review, National Institute of Mental Health
- 1998 **Temporary Member**, *Integrative, Functional, Cognitive Neuroscience IRG (IFCN-7)*, Center for Scientific Review, National Institute of Mental Health

### **Departmental and University Service:**

#### **Department:**

- 2012-pres **Member**, *Advisory Committee*, Department of Psychology, Texas A&M University
- 2012-pres **Coordinator**, *Neuroscience Area*, Department of Psychology, Texas A&M University
- 2013-2014 **Member**, *Affective Science Search Committee*, Department of Psychology, Texas A&M University
- 2012-2014 **Chair**, *Behavioral and Cellular Neuroscience Search Committee*, Department of Psychology, Texas A&M University
- 2006-2008 **Member**, *Executive Committee*, Department of Psychology, University of Michigan
- 2004-2005 **Member**, *Augmented Executive Committee*, Department of Psychology, University of Michigan
- 2001-2002 **Member**, *Graduate Committee*, Department of Psychology, University of Michigan
- 2000-2001 **Member**, *Executive Committee*, Department of Psychology, University of Michigan
- 1999-2001 **Member**, *Admissions Committee*, Neuroscience Program, University of Michigan
- 1998-1999 **Member**, *Augmented Executive Committee*, Department of Psychology, University of Michigan
- 1997-1999 **Member**, *Graduate Committee*, Department of Psychology, University of Michigan
- 1996-1997 **Member**, *Undergraduate Committee*, Department of Psychology, University of Michigan

#### **College and University:**

- 2015-pres **Member**, *Research Development Fund Advisory Committee*, Vice President for Research, Texas A&M University.
- 2013-pres **Member**, *Dean's Advisory Committee*, College of Liberal Arts, Texas A&M University.
- 2009-2010 Joint Committee on the Future of Social Sciences, OVPR, University of Michigan.
- 2007-present **Director**, *Neuroscience Graduate Program*, University of Michigan
- 2004-present **Member**, *Admissions Committee*, Neuroscience Graduate Program, University of Michigan
- 2007-present **Member**, *Operating Committee*, Program in Biomedical Sciences, University of Michigan
- 2007-present **Member**, *Admission Committee*, Program in Biomedical Sciences, University of Michigan
2007. **Associate Director**, *Neuroscience Graduate Program*, University of Michigan
2008. **Member**, *Executive Committee*, Neuroscience Graduate Program, University of Michigan
2004. **Member**, *Advisory Committee*, Health Science Scholars Program, University of Michigan
- 2003 **Member**, *Rackham Divisional Board*, Horace H. Rackham School of Graduate Studies, University of Michigan
- 2001-2002 **Member**, *Rackham Predoctoral Grant Review Committee*, Rackham Graduate School, University of Michigan
- 1999-2000 **Chair**, *Learning and Memory Subcommittee*, Life Sciences Undergraduate Curriculum Committee, College of Literature, Science, & Arts, University of Michigan
- 1997-1998 **Member**, *Hughes Science Education Grant Committee*, College of Literature, Science, & Arts, University of Michigan

### **PROFESSIONAL SOCIETIES**

The Pavlovian Society, 2004-present

Molecular and Cellular Cognition Society, 2004-present

American Association for the Advancement of Science, 2002-present



Society for Neuroscience, May 1990-present  
American Psychological Association, 1994-present  
Association for Psychological Science, 2006-present  
International Brain Research Organization, 1990-present  
New York Academy of Sciences, 2002-present  
Sigma Xi Scientific Research Society, 1993-present  
Phi Beta Kappa Honor Society, 1989-present  
Psi Chi Psychology Honor Society, 1987-present

## **MEDIA COVERAGE**

May 22, 2002 Interviewed for BBC Radio 4 for Science Frontiers program on 'Fear'. [http://www.bbc.co.uk/radio4/science/frontiers\\_20020522.shtml](http://www.bbc.co.uk/radio4/science/frontiers_20020522.shtml)

July 22, 2002 Interviewed by *New Scientist* on study by Canli et al. showing sex differences in emotional memory encoding in people. <http://www.newscientist.com/article/dn2576.html>

March 23, 2003 Interviewed for *Newsweek* cover story, 'Our Bodies, Our Fears'. <http://www.newsweek.com/id/58568>

March 31, 2003 Interview by UM News service on effect of war coverage on mental health. [http://www.ur.umich.edu/0203/Mar31\\_03/11.shtml](http://www.ur.umich.edu/0203/Mar31_03/11.shtml)

December 11, 2003 Interview for article in *APA Monitor* on fear extinction. <http://www.apa.org/monitor/dec03/kickstart.html>

November 15, 2004 Interviewed by *Associated Press* for study by de Gelder et al. on the communication of fear by body posture in people. [http://www.usatoday.com/news/science/2004-11-15-fear\\_x.htm](http://www.usatoday.com/news/science/2004-11-15-fear_x.htm)

November 8, 2006 Interviewed by *Cosmos* on work from our laboratory on early interventions for fear. <http://www.cosmosmagazine.com/node/830>

August 23, 2007 Commentary on an opinion article in *Scientific American*. <http://www.sciam.com/article.cfm?articleID=965F9C20-E7F2-99DF-3CC5BF77DAD5C7A1>

October 30, 2007 Interviewed by *Associated Press* on clinical understanding of fear and anxiety disorders. <http://www.msnbc.msn.com/id/21547710/>

October 31, 2007 Interviewed by *Associated Press* on story about celebrations of fear. [http://www.usatoday.com/tech/science/2007-10-31-4184765125\\_x.htm](http://www.usatoday.com/tech/science/2007-10-31-4184765125_x.htm)

February 21, 2008 Interviewed by *Technology Review* on paper by Mayford et al. on visualizing synapses encoding fear memory in hippocampus. <http://www.technologyreview.com/Biotech/20320/>

November 9, 2010 Interviewed by *The Scientist* on papers by Anderson et al. and Luthis et al. on microcircuitry of amygdala. <http://www.the-scientist.com/news/display/57802/>

November 11, 2010 Appeared in "Michigan in the News" in the University of Michigan Record Update regarding my comments in the *The Scientist* on papers by Anderson et al. and Luthi et al. on microcircuitry of amygdala. <http://ur.umich.edu/update/archives/101111>

March, 30 2012 *Psychology Today* highlights *Neuron* review and considers whether fear memory can be erased. <http://www.psychologytoday.com/articles/201204/memory-wiping-the-slate>

October 3, 2012 Work on anatomy of fear relapse featured on *Futurity.org*. <http://www.futurity.org/top-stories/fear-relapse-why-phobias-are-hard-to-cure/>

October 2013 Work featured in cover story of the *APS Observer*. <http://www.psychologicalscience.org/index.php/publications/observer/2013/building-a-fearless-mind.html>

July 17, 2014 Work on fear extinction featured in *Nautilus*. <http://nautil.us/issue/15/turbulence/if-trauma-victims-forget-what-is-lost-to-society>

December 15, 2014 Announcement of McKnight Foundation, McKnight Cognitive and Memory Disorder awards. <https://www.neuroscience.mcknight.org/newsroom/neuroscience-news/2015-mcd>

- December 16, 2014 NRN review mentioned in Business Insider. <http://www.businessinsider.com/how-to-improve-memory-2014-12>
- June 30, 2015 Work on propranolol and fear extinction featured on *Texas A&M Today*. <http://today.tamu.edu/2015/06/30/researchers-find-potential-new-ptsd-treatment/>
- July 13, 2015 Work on propranolol and fear extinction featured on *Futurity*. <http://www.futurity.org/blood-pressure-drug-ptsd-fear-957702/>
- July 15, 2015 Work on propranolol and fear extinction featured on *Psychiatry Advisor*. <http://www.psychiatryadvisor.com/ptsd-trauma-and-stressor-related/propranolol-may-help-reduce-fear-in-ptsd/article/426218/>