



### **Personal Information**

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### **Education & Research Positions**

#### **2017– Present; Research Instructor**

Department of Pharmacology, Vanderbilt Center for Addiction Research,  
Vanderbilt University School of Medicine  
Advisor: Dr. Erin S. Calipari

#### **2016 – 2017; Research Associate**

Department of Biobehavioral Health, Pennsylvania State University  
Advisor: Dr. Thomas J. Gould

#### **2013 – 2016; Post-Doctoral Fellow**

Department of Psychology, Temple University  
Advisor: Dr. Thomas J. Gould, Dr. Vinay Parikh

#### **2013; Ph.D. in Cognitive Neuroscience**

Department of Psychology and Neuroscience, Duke University  
Advisor: Dr. Nestor Schmajuk  
Dissertation Committee: Drs. Zachary Rosenthal, Tobias Egner, Ed Levin, and Staci Bilbo “Clinical Relevance of Attentional Effects on Conditioned Inhibition of Discrete and Contextual Stimuli”

#### **2006; B.A. in Psychology**

Department of Psychology, Istanbul Bilgi University/Turkey  
Advisor: Dr. Hasan G. Bahcekapili  
“A Comparative Study of Human Causal Learning”

### **Honors and Awards**

- American College of Neuropsychopharmacology (ACNP) Past Travel Award Scholarship (\$1000) – 2022
- Vanderbilt University School of Medicine Faculty Incentive Award (\$3750) – 2022
- The Brain & Behavior Research Foundation 2021 Leading Research Achievement – 2022
- American College of Neuropsychopharmacology (ACNP) Travel Award – 2021
- The Pfeil Foundation Investigator – 2020
- Winter Conference for Brain Research (WCBR) Panel Travel Award (\$1000) – 2020
- Catecholamine Gordon Research Seminar – Selected for Oral Presentation – 2019
- Japan Neuroscience Society Travel Award (\$2000) – 2018 (Declined)
- Federation of European Neurosciences Societies Forum of Neuroscience Travel Award (\$2000) – 2018
- Society for Neuroscience, Trainee Professional Development Award (\$1000) – 2017
- Society for Research on Nicotine and Tobacco Travel Award (\$2000) – 2017
- Duke University Graduate School Conference Travel Award (\$500) – 2012
- Vertical Integration Program Graduate Fellow (\$3000) – Duke University – 2011
- Claire Hamilton Graduate Studies Conference Travel Award (\$500) – 2010
- Fellowship for Vienna International Summer Uni./Scientific World Conceptions – 2010
- Duke University Graduate Fellowship - 2008-2013
- Superior Achievement Scholarship - Istanbul Bilgi University - 2003-2006

## Grant Support

### Pending Grant Support

- **R21 - National Institute of Mental Health - MH132052- Pending (Impact score: 24; 12<sup>th</sup> percentile) – Role: PI.** *“Predicting maladaptive aversive learning via computational modeling of insular single cell ensemble activity patterns”.*

### Ongoing Grant Support

- **R01 - National Institute on Drug Abuse - DA052317- October 2021 - November 2026 - Role: Co-I.** *“Mechanisms of dopaminergic dysfunction in substance use disorder”*
- **KL2 NIH/NCATS Clinical and Translational Science Award (CTSA) - KL2TR002245 - October 2020 - March 2023 - Role: PI (\$300,000).** *“The role of mesocortical pathway in avoidance behavior”*
- **The Brain & Behavior Research Foundation NARSAD Young Investigator Grant - January 2020 - January 2022 - Role: PI (\$70,000).** *“Encoding of escapable versus inescapable aversive events within the mesocortical circuit”*
- **The Pfeil Foundation Investigator - January 2021 - January 2022 - Role: PI (\$35,000).**
- **Edge for Scholars Research Relaunch Funds - June 2020 - Role: PI (\$4,400).**

### Completed

- **Vanderbilt University Medical Center Faculty Research Scholar Grant - 2019 - 2021 - Role: PI (\$220,000).**
- **Duke Interdisciplinary Initiative in Social Psychology (DIISP) Mini-Grant – Duke University, 2012 – Role: PI**

## Professional Service

- 2022 - Symposium Co-Chair, *Dopaminergic pathways in adaptive and maladaptive behaviors*, Winter Conference for Brain Research Meeting, Snowmass, CO.
- 2020 - 2022 – Vanderbilt Center for Addiction Research Work-in-Progress Talk Series, Co-Chair
- 2021 & 2022 - Vanderbilt Undergraduate Summer Research Program (VUSRP) Review Committee member
- 2020 - Symposium Co-Chair, *Dopaminergic Modulation of Learning and Cognition*, Winter Conference for Brain Research Meeting, Big Sky, MT.
- 2019 - 2020 – Vanderbilt Center for Addiction Research Journal Club, Co-Chair
- 2019 - Basic Science/Preclinical Program Reviewer, Society for Research on Nicotine and Tobacco (SRNT) 2019 Meeting, San Francisco, CA.
- 2018 - Symposium Chair, *Tobacco-Control Campaigns: Research to Evaluation*, SRNT Meeting, Baltimore, MD.
- 2018 - Symposium Chair, *Transgenerational effects of parental nicotine and tobacco exposure on emotion, cognition, and reward*, SRNT Meeting, Baltimore, MD.
- 2018 - Basic Science/Preclinical Program Committee Member, Society for Research on Nicotine and Tobacco (SRNT) 2018 Meeting, Baltimore, MD.
- 2017-2018 - Invited Grant Reviewer for *Deutsche Forschungsgemeinschaft (German Research Foundation)*
- 2017 – 2019 - Basic Science Network Advisory Committee Member, Society for Research on Nicotine and Tobacco (SRNT).

**Editorial Board:** *Frontiers in Psychiatry (Addictive Disorders)*

**Invited Ad-Hoc Reviewer** for *Molecular Psychiatry, Journal of Neuroscience, Neuropsychopharmacology, Neuroscience and Biobehavioral Reviews, Scientific Reports, Hippocampus, Neuropharmacology, Experimental Neurology, Neurobiology of Learning and Memory, Psychopharmacology, Biochemical Pharmacology, Genes, Brain & Behavior, Pharmacology Research, Journal of Neuroscience Research, BMC Genomics, BMC Neuroscience, Journal of Affective Disorders, Nicotine and Tobacco Research, Physiology & Behavior, Pharmacology Biochemistry and Behavior, Neurochemistry International, Brain Research Bulletin, Behavioural Brain Research, Neuroscience Letters, Journal of Visualized Experiments (JoVE), Behavioural Processes.*

## Media Coverage

- “True behavior of the ‘pleasure molecule’ will reshape how we treat psychiatric diseases and addiction” **Science Daily**. September 16, 2021. [Link](#)
- “The true behavior of the “pleasure molecule” reforms the treatment of mental illness and addiction” **Florida News Times**. September 16, 2021. [Link](#)
- “Mental Disorder, Behavior: How Are They Affected By Increased Dopamine Release in the Brain?” **The Science Times**. September 16, 2021. [Link](#)
- “Dopamine is NOT just the ‘feel-good’ hormone, reshaping treatment of psychiatric diseases” **Study Finds** September 17, 2021. [Link](#)
- “AI and Optogenetics Disrupt the Neuroscience of Dopamine” **Psychology Today**. September 20, 2021. [Link](#)

## Pre-print publications and publications under review (\* denotes corresponding author; # denotes co-first author)

1. **Kutlu, M.G.**, Tat, J., Zachry, J.E., Calipari, E.S. (under review). Dopamine release at the time of a predicted aversive outcome causally controls the trajectory and expression of conditioned behavior. *Cell Reports. Biorxiv*. [Link](#)
2. **Kutlu, M.G.**, Zachry, J.E. #, Chevee, M.F., Siciliano., C.A., Calipari, E.S. (in preparation). Nucleus accumbens core ensembles dynamically and transiently encode properties of associative learning. [Link](#)

## Peer-Reviewed Publications (\* denotes corresponding author; # denotes co-first author)

1. **Kutlu, M.G.**, Zachry, J.E.#, Melugin, P.R. #, Tat, J., Cajigas, S.A., Isiktas, A., Siciliano., C.A., Schoenbaum, G., Sharpe, M.J., Calipari, E.S. (2022). Dopamine signaling in the nucleus accumbens core mediates latent inhibition. *Nature Neuroscience*, 25, 1071–1081.
2. **Kutlu, M.G.**, Zachry, J.E., Melugin, P.R., Cajigas, S.A., Chevee, M.F., Kelly, S.J., Kutlu, B., Tian, L., Siciliano., C.A., Calipari, E.S. (2021). Dopamine release in the nucleus accumbens core signals perceived saliency. *Current Biology*. 31(21), 4748-4761.
  - a. Highlighted as Exceptional on Faculty Opinions (formerly F1000). Dalley J: Faculty Opinions Recommendation of [Kutlu MG et al., Curr Biol 2021]. In Faculty Opinions, 14 Oct 2021; 10.3410/f.740812110.793588838.
  - b. Selected for the Brain & Behavior Research Foundation 2021 Leading Research Achievement, 28 Dec 2021.
3. Goldberg, L.R., **Kutlu, M.G.**, Zeid, D., Seemiller, L.R., and Gould, T.J. (2021). Systems genetic analysis of nicotine withdrawal deficits in hippocampus-dependent learning. *Gene, Brain and Behavior*, 20(6), e12734.
4. Lopez, A., Johnson, A.R., Euston, T.J., Nolan, S.O., Brady, L.J., Thibeault, K.C., **Kutlu, M.G.**, Kelly, S.J., Kondev, V., Melugin, P., Chuang, E., Siciliano C.A., Kiraly, D.D., Calipari, E.S. (2021). Cocaine self-administration induces divergent protein expression in the nucleus accumbens of male and female mice to eliminate basal sex differences. *Communications Biology*, 4(1), 1-13.
5. **Kutlu, M.G.**, Zachry, J.E.#, Brady, L., Melugin, P., L.J., Sanders, C., Tat, J., Johnson, A.R., Lopez, A., Siciliano., C.A., Calipari, E.S. (2020). A novel multidimensional reinforcement task in mice elucidates sex-specific behavioral strategies. *Neuropsychopharmacology*, 45(9), 1463-1472.
6. Badimon, A., Strasburger, H.J., Ayata, P., Chen, X., Nair, A., Ikegami, A., Hwang, P., Chan, A.T., Graves, S.M., Uweru, O.J., Ledderose, C., **Kutlu, M.G.**, Wheeler, M.A., (...) Calipari, E.S., Kenny, P.J., Eyo, U., Colonna, M., Quintana, F.J., Wake, H., Gradinaru, V., Schaefer, A. (2020). Negative feedback control of neuronal activity by microglia. *Nature*, 586, 417-423.
7. Lopez, A., Johnson, A.R., Kunnath, A.J., Zachry, J.E., Thibeault, K.C., **Kutlu, M.G.**, Siciliano C.A., Calipari, E.S. (2021). An optimized procedure for robust volitional cocaine intake in mice. *Experimental and Clinical Psychopharmacology*, 29(4), 319.
8. Cole, R., Zimmerman, M., Matchanova, A., **Kutlu, M.G.**, Gould, T.J., Parikh, V. (2020). Cognitive rigidity and BDNF-mediated frontostriatal glutamate neuroadaptations during spontaneous nicotine withdrawal. *Neuropsychopharmacology*, 45, 866-876.

9. Goldberg, L.R., Zeid, D., **Kutlu, M.G.**, Cole, R., Lallai, V., Sebastian, A., Albert, I., Fowler, C., Parikh, V., and Gould, T.J. (2019). Paternal nicotine enhances fear memory, reduces nicotine self-administration and alters hippocampal genetic and cholinergic function in subsequent generations. *Addiction Biology*, e12859.
10. Johnson, A.R., Thibeault, K.C., Lopez, A., Peck, E.G., Sands, L.P., Sanders, M.C., **Kutlu, M.G.**, Calipari, E.S. (2019). Cues play a critical role in estrous cycle-dependent enhancement of cocaine reinforcement. *Neuropsychopharmacology*, 44(7), 1189-1197.
11. Thibeault, K.C. , **Kutlu, M.G.** #, Sanders, M.C., Calipari, E.S. (2019). Cell-type and projection-specific dopaminergic encoding of aversive stimuli in addiction. *Brain Research*, 1713, 1-15.
12. Mervosh, N.L., Wilson, R., Rauniyar, N., Hofford, R.S., **Kutlu, M.G.**, Calipari, E.S., Lam, T.T., Kiraly, D.D. (2018). Granulocyte-colony stimulating factor alters the proteomic landscape of the ventral tegmental area. *Proteomes*, 6(4), 35.
13. **Kutlu, M.G.**\*, Connor, D.A., Tumolo, J.M., Cann, C., Garret, B., & Gould, T.J. (2018). Nicotine modulates contextual fear extinction through changes in ventral hippocampal GABAergic function. *Neuropharmacology*, 142, 192-200.
14. **Kutlu, M.G.**, Brady, L.J., Peck, E.G., Hofford R.S., Siciliano, C.A., Kiraly, D.D., Calipari, E.S. (2018). Granulocyte colony stimulating factor enhances reward learning through potentiation of mesolimbic dopamine system. *Journal of Neuroscience*, 38(41), 8845-8859.
15. Zeid, D., **Kutlu, M.G.**, & Gould, T.J. (2018). Differential effects of nicotine exposure on the hippocampus across lifespan. *Current Neuropharmacology*, 16(4), 388-402.
16. **Kutlu, M.G.**\*, Zeid, D., Tumolo, J.M., & Gould, T.J. (2018). Pre-adolescent and adolescent mice are less sensitive to the effects of acute nicotine on extinction and spontaneous recovery. *Brain Research Bulletin*, 138, 50-55.
17. **Kutlu, M.G.**\*, Marin, M. #, Tumolo, J.M., Kaur, N., VanElzaker, M., Shin, S.M., & Gould, T.J. (2018). Nicotine exposure leads to deficits in differential fear conditioning in mice and humans: a potential role of the subgenual anterior cingulate cortex. *Neuroscience Letters*, 673, 142-149.
18. **Kutlu, M.G.**\*, Cole, R., Connor, D.A., Natwora, B., & Gould, T.J. (2018). TrkB receptor activation reverses the impairing effects of acute nicotine on contextual fear extinction. *Journal of Psychopharmacology*, 32(3), 367-372.
19. **Kutlu, M.G.**\*, Tumolo, J.M., Cann, C., & Gould, T.J. (2018). Differential effects of  $\alpha 4\beta 2$  nicotinic receptor antagonists and partial-agonists on contextual fear extinction in male C57BL/6 mice. *Psychopharmacology*, 235, 1211-1219.
20. Oliver, C., **Kutlu, M.G.**, Zeid, D., & Gould, T.J. (2018). Sex differences in the effects of nicotine on fear extinction. *Biochemistry, Pharmacology, and Behavior*, 165, 25-28.
21. Tumolo, J.M., **Kutlu, M.G.**, & Gould, T.J. (2018). Chronic nicotine differentially alters spontaneous recovery of contextual fear in male and female mice. *Behavioural Brain Research*, 341, 176-180.
22. **Kutlu, M.G.**\*, Garret, B., Gadiwalla, S., Tumolo, J.M., & Gould, T.J. (2017). Acute nicotine downregulates long-term memory-associated hippocampal kinases during contextual fear extinction. *Neurobiology of Learning and Memory*, 145, 143-150.
23. Connor, D.A., **Kutlu, M.G.**, & Gould, T.J. (2017). Nicotine disrupts safety learning through enhancing maladaptive trace associations mediated by dorsal hippocampus and medial prefrontal cortex. *Journal of Psychopharmacology*, 31(7), 934-944.
24. Holliday, E., Nucero, P., **Kutlu, M.G.**, Oliver, C., Connelly, P., Unterwald, E., & Gould, T.J. (2016). Long-term effects of chronic nicotine on emotional and cognitive behaviors and hippocampus cell morphology in mice: comparisons of adult and adolescent exposure. *European Journal of Neuroscience*, 44(10), 2818-2828.
25. **Kutlu, M.G.**, & Gould, T.J. (2016). Effects of drugs of abuse on hippocampal plasticity and hippocampus-dependent learning and memory: contributions to development and maintenance of addiction. *Learning and Memory*, 23(10), 515-533.

26. **Kutlu, M.G.\***, Tumolo, J.M., Holliday, E., Garret, B., & Gould, T.J. (2016). Acute nicotine enhances spontaneous recovery of contextual fear and changes *c-fos* early gene expression in infralimbic cortex, hippocampus, and amygdala. *Learning and Memory*, 23(8), 405-414.
27. **Kutlu, M.G.\***, Oliver, C., Huang, P., Liu-Chen, L.Y., & Gould, T.J. (2016). Impairment of contextual fear extinction by chronic nicotine and withdrawal from chronic nicotine is associated with hippocampal nAChR upregulation. *Neuropharmacology*, 109, 341-348.
28. **Kutlu, M.G.\***, Braak, D.C., Tumolo, J.M., & Gould, T.J. (2016). Adolescent mice are less sensitive to the effects of acute nicotine on context pre-exposure than adults. *Brain Research*, 1642, 445-451.
29. Parikh, V., **Kutlu, M. G.**, & Gould, T. J. (2016). nAChR dysfunction as a common substrate for schizophrenia and comorbid nicotine addiction: Current trends and perspectives. *Schizophrenia Research*, 171 (1-3), 1-15.
30. **Kutlu, M. G.**, & Gould, T. J. (2016). Nicotinic modulation of hippocampal cell signaling and associated effects on learning and memory. *Physiology & Behavior*, 155, 162-171.
31. **Kutlu, M. G.\***, Holliday, E., & Gould, T. J. (2016). High-affinity  $\alpha 4\beta 2$  nicotinic receptors mediate the impairing effects of acute nicotine on contextual fear extinction. *Neurobiology of Learning and Memory*, 128, 17-22.
32. **Kutlu, M.G.**, & Gould, T.J. (2015). Nicotine modulation of fear memories and cellular substrates: Implications of learning and anxiety disorders. *Biochemical Pharmacology*, 97(4), 498-511.
33. Hall, B. J., Slade, S., Allenby, C., **Kutlu, M. G.**, & Levin, E. D. (2015). Neuro-anatomic mapping of dopamine D1 receptor involvement in nicotine self-administration in rats. *Neuropharmacology*, 99, 689-695.
34. **Kutlu, M. G.**, Parikh, V., & Gould, T. J. (2015). Nicotine Addiction and Psychiatric Disorders. *International Review of Neurobiology*, 124, 171-208.
35. Leach, T.L., Holliday, E., **Kutlu, M.G.**, & Gould, T.J. (2015). In C57BL/6J mice, withdrawal from chronic nicotine reduces thyroid hormone levels and levothyroxine treatment ameliorates nicotine withdrawal-induced deficits in hippocampus-dependent learning. *Nicotine & Tobacco Research*, 17(6), 690-696.
36. **Kutlu, M.G.**, Ortega, L.A. #, & Gould, T.J. (2015). Strain-dependent performance in nicotine-induced conditioned place preference. *Behavioral Neuroscience*, 129(1), 37-41.
37. **Kutlu, M.G.\***, Oliver, C., & Gould, T.J. (2014). The effects of acute nicotine on contextual safety discrimination. *Journal of Psychopharmacology*, 28(11), 1064-1070.
38. Rosenthal, M.Z., & **Kutlu, M.G.** (2014). Translation of associative learning models into extinction reminders delivered via mobile phones during cue exposure interventions for substance use. *Psychology of Addictive Behaviors*, 28(3), 863-871.
39. **Kutlu, M.G.\***, & Gould, T.J. (2014). An acute dose of nicotine delays extinction of contextual fear in mice. *Behavioural Brain Research*, 263, 133-137.
40. **Kutlu, M. G.**, Burke, D., Slade, S., Hall, B. J., Rose, J. E., & Levin, E. D. (2013). Role of insular cortex D1 and D2 dopamine receptors in nicotine self-administration in rats. *Behavioural Brain Research*, 256, 273-278.
41. **Kutlu, M.G.**, & Schmajuk, N.A. (2012). Solving Pavlov's puzzle: Attentional, associative and flexible configural mechanisms in classical conditioning. *Learning & Behavior*, 40, 269-291.
42. **Kutlu, M.G.**, & Schmajuk, N.A. (2012). Deactivation and reactivation of the inhibitory power of a conditioned inhibitor: Testing the predictions of an attentional-associative model. *Learning & Behavior*, 40, 83-97.
43. **Kutlu, M.G.**, & Schmajuk, N.A. (2012). Classical conditioning mechanisms can differentiate between seeing and doing in rats. *Journal of Experimental Psychology: Animal Behavior Processes*, 38(1), 84-101.
44. Schmajuk, N.A., & **Kutlu, M.G.** (2011). Latent inhibition and compound conditioning: A reply to Holmes and Harris (2009). *Journal of Experimental Psychology: Animal Behavior Processes*, 37(2), 254-260.

45. Schmajuk, N.A., & **Kutlu, M.G.** (2009). The computational nature of associative learning. *Behavioral Brain Science*, 32, 223-224.

### **Book Chapters**

1. **Kutlu, M. G.**, Holliday, E. & Gould, T. J. (2016). Genetic, developmental, and receptor level influences on nicotine withdrawal-associated deficits in learning. In F.S. Hall, J.W. Young; A. Der-Avakian (Eds.) *Negative Affective States and Cognitive Impairments in Nicotine Dependence* (pp. 53-69).
2. **Kutlu, M. G.**, & Gould, T. J. (2015). Nicotinic receptors, memory, and hippocampus. In D.J.K. Balfour & M.R. Munafo (Eds.) *The Neurobiology and Genetics of Nicotine and Tobacco* (pp. 137-163). Current Topics in Behavioral Neurosciences Vol. 23, Springer International Publishing Switzerland.
3. Schmajuk, N.A., & **Kutlu, M. G.** (2010). A computational model that provides an associative interpretation of outcome additivity and maximality effects on blocking. In E. Alonso and E. Mondragon (Eds.) *Computational Neuroscience for Advancing Artificial Intelligence: Models, Methods and Applications*. Hershey, PA: IGI Global.
4. Schmajuk, N.A., **Kutlu, M.G.**, Dunsmoor, J., & Larrauri, J.A. (2010). Attention, associations, and configurations in conditioning. In N.A. Schmajuk (Ed.), *Computational Models of Conditioning*. New York, N.Y.: Cambridge University Press.

### **Invited Talks and Seminars**

1. "Dissecting the role of accumbal D1 and D2 medium spiny neurons in information encoding". Icahn School of Medicine at Mount Sinai, MSN Seminar Series. *September 2022*.
2. "Accumbal processes in reward and punishment: from dopamine terminals to single cell ensembles". Rowan University, Department of Cell Biology & Neuroscience Seminar Series. *August 2022*.
3. "Dissecting the role of accumbal D1 and D2 medium spiny neurons in information encoding". World Wide Neurise Seminar [virtual]. *February 2022*.
4. "The role of accumbal information encoding in safety learning and anxiety: Implications for anxiety and stress disorders". Rosalind Franklin University, Innovation Science Seminar. *January 2022*.
5. "Information encoding in the nucleus accumbens by dopamine and single cell clusters". University College London, Affective Brain Talk Series. *November 2021*.
6. "Accumbal D1 and D2 medium spiny neurons encode presence and prediction of behavioral outcomes". *Virtual Dopamine: The Future of Dopamine Symposium, November 2020*.
7. "Involvement of accumbal D1 and D2 medium spiny neurons in information encoding processes during associative learning". *Wake Forest School of Medicine, October 2020*.
8. "Behavioral and neural mechanisms of sex-specific valence encoding under conflict". *Building Interdisciplinary Research Careers in Women's Health (BIRCWH) Work in Progress, Vanderbilt University, September, 2020*.
9. "Valence-free information processing by dopamine release in the nucleus accumbens core". *Tucker-Davis Technologies (TDT) Fiber Photometry Talk Series, August 2020*.
10. "Evolution of a neural network model of general conditioning". *Cognitive and Neural Modeling Meeting, Nashville, TN, February 2020*.
11. "A novel framework of diametric stimulus encoding in the nucleus accumbens". *Vanderbilt University Psychology Department Neuroscience Brownbag Series, Nashville, TN, October 2019*.
12. "A novel framework of diametric stimulus encoding in the nucleus accumbens". *Vanderbilt University Pharmacology Department Seminar Series, Nashville, TN, September 2019*.
13. "Effects of nicotine on extinction of contextual fear: Implications for anxiety and stress disorders". *The Scripps Research Institute, Jupiter, FL, August 2017*.
14. "Evolution of an associative learning model: Deriving and testing predictions". *University of Wisconsin-Milwaukee, Milwaukee, WI, December 2012*.
15. "Evolution of an associative learning model: Deriving and testing predictions". *Mass General Hospital & Harvard Medical School, Boston, MA, November 2012*.
16. "Evolution of an associative learning model: Deriving and testing predictions". *Temple University, Philadelphia, PA, November 2012*.

## Selected Conference Posters & Talks

1. **Kutlu, M.G.** (2022). *Functional Clusters of Accumbal Single Cells Encode Associative Learning*. Winter Conference on Brain Research (WCBR), Snowmass, CO. **[selected for oral presentation]**
2. **Kutlu, M.G.** (2021). *Dopamine release in the nucleus accumbens core signals valence-free perceived saliency*. International Behavioral Neuroscience (IBNS) meeting, Virtual. **[selected for oral presentation]**
3. **Kutlu, M.G.** Zachry, J.E., Melugin, P., Isiktas, A.U., Calipari, E.S. (2020). *Novelty in the environment dictates dopamine release patterns in the nucleus accumbens core*. ACNP annual meeting, Virtual.
4. **Kutlu, M.G.** (2020). *Novelty in the environment dictates dopamine release patterns in the nucleus accumbens core*. Pavlovian Society meeting, Virtual.
5. **Kutlu, M.G.** (2020). *A novel computational framework for the role of nucleus accumbens dopamine in information processing*. Computational and Systems Neuroscience (Cosyne) meeting, Denver, CO.
6. **Kutlu, M.G.** (2020). *Valence-free information processing by dopamine release in the nucleus accumbens core*. Winter Conference on Brain Research (WCBR), Big Sky, MO. **[selected for oral presentation]**
7. **Kutlu, M.G.** (2019). *A novel framework of diametric stimulus encoding in the nucleus accumbens*. Gordon Research Conferences Catecholamines Meeting, Newry, ME. **[selected for oral presentation]**
8. **Kutlu, M.G.**, L.J., Peck, E.G., Siciliano, C.A., Kiraly, D.D., Calipari, E.S. (2018). *Granulocyte colony stimulating factor enhances reward learning through potentiation of mesolimbic dopamine system function*. Forum of Neuroscience (FENS), Berlin, Germany.
9. **Kutlu, M.G.**, Cole, R., Tumolo, J.T., Zeid, D., Parikh, V. & Gould, T.J. (2017). *Paternal nicotine exposure transgenerationally alters gene expression in the cholinergic signaling pathway*. Society for Neuroscience Meeting, Washington, D.C.
10. **Kutlu, M.G.**, Cole, R., Tumolo, J.T., Parikh, V. & Gould, T.J. (2017). *Paternal nicotine exposure transgenerationally alters fear learning and cholinergic function*. College on Problems of Drug Dependence, Montreal, Canada. **[selected for oral presentation]**
11. **Kutlu, M.G.**, Cole, R., Tumolo, J.T., Parikh, V. & Gould, T.J. (2017). *Transgenerational effects of paternal nicotine exposure on fear response and cholinergic function*. Society for Research on Nicotine and Tobacco Meeting, Florence, Italy. **[selected for oral presentation]**
12. **Kutlu, M.G.**, Cole, R., Tumolo, J.T., Parikh, V. & Gould, T.J. (2016). *Paternal nicotine exposure transgenerationally alters fear response and cholinergic function: potential epigenetic mechanisms*. NIDA Genetics Consortium Meeting, Rockville, MD.
13. **Kutlu, M.G.**, Cole, R., Tumolo, J.T., Parikh, V. & Gould, T.J. (2016). *Transgenerational effects of paternal nicotine exposure on fear response and cholinergic function*. Society for Neuroscience Meeting, San Diego, CA.
14. **Kutlu, M.G.**, Tumolo, J.T., Garrett, B., Holliday, E. & Gould, T.J. (2016). *Nicotinic acetylcholine receptors modulate contextual fear extinction through ventral hippocampal GABAergic signaling*. Pavlovian Society Meeting, Jersey City, NJ.
15. **Kutlu, M.G.**, & Oliver, C. (2015). *Effects of nicotine on extinction of contextual fear: Potential sex differences and implications for anxiety disorders*. Center for Substance Abuse Research (CSAR) Research in Progress Seminar Series, Philadelphia, PA.
16. **Kutlu, M.G.**, Holliday, E., & Gould, T.J. (2015). *Acute nicotine's enhancing effects on spontaneous recovery of contextual fear is associated with increased activity in the ventral hippocampus in mice*. Brain Preparedness Research Day, Philadelphia, PA.
17. **Kutlu, M.G.**, Holliday, E., & Gould, T.J. (2015). *High-affinity  $\alpha 4\beta 2$  nicotinic receptors are required for the impairing effects of acute nicotine on contextual fear extinction*. Society for Neuroscience Meeting, Chicago, IL.
18. **Kutlu, M.G.**, Holliday, E., & Gould, T.J. (2015). *Acute nicotine's enhancing effects on spontaneous recovery of contextual fear are associated with altered activity in the fear extinction circuitry in mice*. Gordon Research Conference/Seminar - Amygdala in Health & Disease, Easton, MA.
19. **Kutlu, M.G.** (2015). *Effects of nicotine on extinction and recovery of contextual fear: Implications for anxiety disorders*. Behavioral Neuroscience Science in Progress (SIP) Seminar Series, Philadelphia, PA.
20. **Kutlu, M.G.**, Holliday, E., & Gould, T.J. (2015). *Acute nicotine's enhancing effects on spontaneous recovery of contextual fear is associated with increased activity in the ventral hippocampus in mice*. Philadelphia Chapter of the Society for Neuroscience Meeting, Philadelphia, PA.
21. **Kutlu, M.G.**, Oliver, C., Cole, R., Connor, D., & Gould, T.J. (2015). *Acute, chronic, and withdrawal from nicotine impair extinction of contextual fear and a *trkB* agonist, 7,8DHF, ameliorates nicotine-induced impairment of extinction in mice*. Society for Research on Nicotine and Tobacco Meeting, Philadelphia, PA.
22. **Kutlu, M.G.**, Oliver, C., Cole, R., Connor, D., & Gould, T.J. (2014). *Acute, chronic, and withdrawal from nicotine impair extinction of contextual fear and a *trkB* agonist, 7,8DHF, ameliorates nicotine-induced impairment of extinction in mice*. Society for Neuroscience Meeting, Washington, D.C.
23. **Kutlu, M.G.**, & Gould, T.J. (2014). *An acute dose of nicotine delays extinction of contextual fear in mice*. Symposium on Substance Abuse in the 21st Century, Philadelphia, PA.

24. **Kutlu, M.G.**, Nichols, Z., Schmajuk, N.A., Larrauri, J., & Rosenthal, M.Z. (2012). *Evaluating the Timing of Extinction Reminders in a Nonclinical Sample: A Step Toward Enhancing Generalization of Learning*. ABCT 46th Annual Convention, National Harbor, MD
25. **Kutlu, M.G.**, Burke, D., Slade, S., Rose, J.E., and Levin, E.D. (2012). *Acute and Chronic Inhibition of Dopamine D1 Receptors in the Insular Cortex Decrease Nicotine Self-Administration in Rats*. Society for Neuroscience Meeting, New Orleans, LA.
26. **Kutlu, M.G.**, and Schmajuk, N.A. (2012). *Solving Pavlov's puzzle: Attentional, associative, and flexible configural mechanisms in classical conditioning*. Society of Computational Modeling of Associative Learning Meeting, Jersey City, NJ. [selected for oral presentation]
27. **Kutlu, M.G.**, and Schmajuk, N.A. (2012). *Associative mechanisms can differentiate between observation and intervention in rats*. Pavlovian Society Meeting, Jersey City, NJ.
28. **Kutlu, M.G.**, and Schmajuk, N.A. (2012). *Inhibitory After All: Context becomes inhibitory during extinction*. Pavlovian Society Meeting, Jersey City, NJ. [selected for oral presentation]
29. **Kutlu, M.G.**, and Schmajuk, N.A. (2012). *Associative mechanisms can differentiate between observation and intervention in rats*. North Carolina Cognition Group Meeting, Chapel Hill, NC. [selected for oral presentation]
30. **Kutlu, M.G.**, and Schmajuk, N.A. (2010). *An Attentional-Associative Model of Extinction*. Pavlovian Society Meeting, Baltimore, MD. [selected for oral presentation]

### Teaching Experience

- **Instructor** – Learning and Adaptive Behavior (PSY111/BIO167) – Duke University 2012
- Guest Lecturer – Intro to Psych for Honors Students – New Jersey Institute of Technology 2022
- Guest Lecturer – Animal Cognition and Learning – Duke University 2012
- Teaching Assistant – Learning & Adaptive Behavior – Duke University 2011
- Teaching Assistant – Cognitive Psychology – Duke University 2011
- Teaching Assistant – The Biological Bases of Behavior – Duke University 2010
- Teaching Assistant – Introduction to Psychology – Duke University 2010
- Guest Lecturer – Animal Cognition and Learning – Duke University 2010

### Outreach

#### **Mentoring high school students for lab experience:**

2018-2020 – Charlie Rost, School for Science and Math at Vanderbilt

### Student Mentorship / Research Training

- 2021 – Present – Jennifer Tat, Vanderbilt University, Research Technician
- 2019-2021 – Amanda Waters, Vanderbilt University, Graduate Student
- 2019-2020 – Atagun Isiktas, Yale University postgraduate student
- 2019-2020 – Shannon Kelly, Belmont University, Exchange Undergraduate Researcher
- 2018-2020 – Sophie Halper, Vanderbilt University, Undergraduate Researcher
- 2018-2019 – Ashley Hendricks, Vanderbilt University, Undergraduate Researcher
- 2018-2019 – Ryley Guay, Vanderbilt University, Undergraduate Researcher
- 2018-2019 – Christina Sanders, Vanderbilt University, Undergraduate Researcher (NIDA post-bac)
- 2016-2017 – Courtney Cann, Penn State University, Undergraduate Researcher (NIDA post-bac)
- 2015-2016 – David Braak, Temple University, Undergraduate Researcher (MUSC, Medical School)
- 2014-2016 – Jessica Tumolo, Temple University, Undergraduate Researcher (Industry)
- 2014-2016 – Brendan Garrett, Temple University, Undergraduate Researcher (Industry)
- 2014-2015 – Aiste Cechaviciute, Temple University, Undergraduate Researcher
- 2011-2013 – Aadya Deshpande, Duke University, Undergraduate Researcher