

Munir Gunes Kutlu, Ph.D.

Curriculum Vitae

Personal Information

Address: Penn State University, Department of Biobehavioral Health
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Residency Status: Permanent resident of USA

Education & Training

2016 – Present Research Associate

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

2013 - 2016 Post-Doctoral Fellow

Department of Psychology, Temple University
Advisor: Prof. Thomas J. Gould

2008 - 2013 Ph.D. in Cognitive Neuroscience

Department of Psychology and Neuroscience, Duke University
Advisor: Prof. Nestor Schmajuk

Dissertation Committee: Zachary Rosenthal, Tobias Egner, Ed Levin, and Staci Bilbo
“Clinical Relevance of Attentional Effects on Conditioned Inhibition of Discrete and Contextual Stimuli”

2008 - 2012 M.A. in Cognitive Neuroscience

Department of Psychology and Neuroscience, Duke University

2007 - 2008 M.A. in Psychobiology

Department of Psychology, Bogazici University/Turkey
No Degree

2002 - 2006 B.A. in Psychology

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

Honors and Awards

- Superior Achievement Scholarship - Istanbul Bilgi University, 2003-2006
- Duke University Graduate Fellowship, 2008-2013
- Fellowship for Vienna International Summer Uni. / Scientific World Conceptions, 2010
- Claire Hamilton Graduate Studies Conference Travel Award – 2010
- Duke University Graduate School Conference Travel Award – 2012
- Vertical Integration Program Graduate Fellow – Duke University, 2011
- Duke Interdisciplinary Initiative in Social Psychology (DIISP) Mini-Grant – Duke University, 2012
- Society for Research on Nicotine and Tobacco travel award - 2017

Grant Support

Current Support

Project Number: U01 DA041632-01 Role: Research Associate

Agency: NIH/NIDA

Major Goals: This grant examines gene variants related to nicotine withdrawal deficits in learning using next-generation sequencing.

Period of Performance: 09/15/2016 – 07/31/2021

Annual direct costs: \$225,000

PI: Thomas Gould

Pending Grants

None

Professional Service

2017-present Basic Science Network Advisory Committee, Society for Research on Nicotine and Tobacco (SRNT)

Invited Grant Reviewer for *Deutsche Forschungsgemeinschaft (German Research Foundation)*

Invited Reviewer for *Hippocampus*

Invited Reviewer for *Neuropharmacology*

Invited Reviewer for *Neurobiology of Learning and Memory*

Invited Reviewer for *Psychopharmacology*

Invited Reviewer for *BMC Genomics*

Invited Reviewer for *Journal of Affective Disorders*

Invited Reviewer for *Nicotine and Tobacco Research*

Invited Reviewer for *Pharmacology, Biochemistry and Behavior*

Manuscripts in preparation

1. **Kutlu, M.G.**, Marin, M., Tumolo, J.M., Kaur, N., VanElzakker, M., Shin., S.M., & Gould, T.J. (in preparation). Nicotine exposure leads to deficits in differential fear conditioning in mice and humans: a potential role of the subgenual anterior cingulate cortex.
2. Tumolo, J.M., **Kutlu, M.G.**, & Gould, T.J. (in preparation). Chronic nicotine differentially alters spontaneous recovery of contextual fear in male and female mice.
3. Cole, R., Zimmerman, M., **Kutlu, M.G.**, Gould., T.J., & Parikh, V. (in preparation). Nicotine withdrawal and deficits in cognitive flexibility: Contribution of frontostriatal neurochemical mechanisms.
4. Oliver., C., Jaikumar., A., **Kutlu, M.G.**, Gaiters., H., & Gould., T.J. (in preparation). Sex differences in the effects of nicotine on fear extinction and brain estradiol levels.

Peer-Reviewed Publications

1. **Kutlu, M.G.**, Cole, R., Tumolo, J.M., Parikh, V., & Gould, T.J. (submitted). Transgenerational effects of paternal nicotine exposure on fear response and cholinergic function. *Biological Psychiatry*.
2. **Kutlu, M.G.**, Garret, B., Gadiwalla., S., Tumolo, J.M., & Gould, T.J. (under revision). Acute nicotine downregulates long-term memory-associated hippocampal kinases during contextual fear extinction. *Neurobiology of Learning and Memory*.
3. Zeid, D., **Kutlu, M.G.**, & Gould, T.J. (in press). Differential effects of nicotine exposure on the hippocampus across lifespan. *Current Neuropharmacology*.
4. **Kutlu, M.G.**, Zeid, D., Tumolo, J.M., & Gould, T.J. (in press). Adolescent mice are less sensitive to the impairing effects of acute nicotine on extinction. *Brain Research Bulletin*.
5. Connor, D.A., **Kutlu, M.G.**, & Gould, T.J. (in press). Nicotine disrupts safety learning through enhancing maladaptive trace associations mediated by dorsal hippocampus and medial prefrontal cortex. *Journal of Psychopharmacology*.
6. 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.
7. **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.

8. **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.
9. **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.
10. **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.
11. 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.
12. **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.
13. **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.
14. **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.
15. 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.
16. **Kutlu, M. G.**, Parikh, V., & Gould, T. J. (2015). Nicotine Addiction and Psychiatric Disorders. *International Review of Neurobiology*, 124, 171-208.
17. 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.
18. **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.
19. **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.

20. 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.
21. **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.
22. **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.
23. **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.
24. **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.
25. **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.
26. 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.
27. 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. Munafò (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.

- 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.

Other Non-Peer Reviewed Contributions

- Kutlu, M. G.** (2011). Alışmadan kültüre öğrenmenin evrimi. *Bilim ve Ütopya*, 209, 21-24.
- Schmajuk, N.A., & **Kutlu, M. G.** (2012). Surprise! Neural correlates of Pearce–Hall and Rescorla–Wagner coexist within the brain. [Blog Entry]. European Journal of Neuroscience Blog. www.ejnblog.org.

Selected Conference/Seminar Posters & Talks

- 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]
- 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]
- Kutlu, M.G.**, Cole, R., Tumolo, J.T., Parikh, V. & Gould, T.J. (2016). *Paternal nicotine exposure trans-generationally alters fear response and cholinergic function: potential epigenetic mechanisms*. NIDA Genetics Consortium Meeting, Rockville, MD.
- 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.
- 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.
- 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.
- 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.
- 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.

9. **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.
10. **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.
11. **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.
12. **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.
13. **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.
14. **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.
15. Hall, B.J., **Kutlu, M.G.**, Slade, S., Rose, J.E., and Levin, E.D. (2013). *Dopaminergic receptor antagonism in the Anterior Cingulate Cortex and Nucleus Accumbens reduces nicotine self-administration in rats*. Society for Neuroscience Meeting, San Diego, CA.
16. **Kutlu, M.G.**, (2013). *Inhibitory After All: Context becomes inhibitory during extinction*. Memory, Emotion & Attention Lunchbox (MEAL) Series, Durham, NC.
17. **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
18. **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.
19. **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]

20. **Kutlu, M.G.**, and Schmajuk, N.A. (2012). *Associative mechanisms can differentiate between observation and intervention in rats*. Pavlovian Society Meeting, Jersey City, NJ.

21. **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]

22. **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]

23. **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 – Animal Cognition and Learning – Duke University 2012
- Research Mentor – Vertical Integration Program – Duke University 2011
- 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

Professional Memberships

Society for Neuroscience (SfN)

Society for Research on Nicotine and Tobacco (SRNT)

Society for Computational Modeling of Associative Learning (SOCMAL)

Pavlovian Society

Philadelphia Chapter of the Society for Neuroscience (PCSfN)