Jakob "Koby" Shaykin

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Education

2022 – Present **Ph.D.,** Experimental Psychology, University of Kentucky
Concentration: Cognitive Neuroscience
Graduate Certificate: Applied Statistics
Thesis: Genomic Signatures of Escalated Fentanyl Use
Mentors: Michael T. Bardo, Ph.D., Jill R. Turner, Ph.D.

2020 – 2022 **M.S.,** Experimental Psychology, University of Kentucky
Concentration: Cognitive Neuroscience
Graduate Certificate: Applied Statistics
Thesis: Social Isolation and Adolescent Ethanol Exposure on Adult Drinking and Nicotine Co-Use
Mentor: Michael T. Bardo, Ph.D.

2016 – 2020 **B.S.,** Psychology: Behavioral Science, Western Michigan University
Honors: Magna cum laude (GPA: 3.81)
Minor: Integrated Holistic Health and Wellness
Thesis: Conditioned Place Preference with Low Dose Mixtures of 3,4-methylenedioxypyrovalerone (MDPV) and α-pyrrolidinopentiophenone (α-PVP) in Male and Female Sprague-Dawley Rats
Mentor: Lisa E. Baker, Ph.D.

Research Statement

My primary research interest is to develop better animal models of substance use disorders (SUD), particularly opioid use disorder (OUD) in order to facilitate our understanding of the behavioral, neural, and transcriptomic changes that occur in OUD. My current work seeks to understand how individual variability in the escalation of fentanyl intake relates to genomically driven differences in the prefrontal cortex (PFC), and to determine the role of non-neuronal cell types associated with escalated fentanyl intake. I use cutting-edge computational and transcriptomic techniques to uncover potential targets to guide medication development for OUD.

Research Experience

2023 – Present **Graduate Research Assistant**
Location: University of Kentucky
Turner Laboratory
Supervisor: Jill R. Turner, Ph.D.
Description: Examine genes that are highly associated with the predictive value of OUD escalation using methods such as qPCR, IHC, RNA scope, as well as bulk and single-nucleus RNA-sequencing.

2020 – Present **Graduate Research Assistant**
Location: University of Kentucky
Bardo Laboratory
Supervisor: Michael T. Bardo, Ph.D.
Description: Evaluate adrenergic adjuncts to be used in combination with opioid antagonists to better reverse the locomotor and respiratory depressant effects of fentanyl. Our work also assesses phenotypical differences in fentanyl escalation.

2019 – 2020 **Undergraduate Research Assistant**
Location: Western Michigan University
Behavioral Neuroscience Laboratory
Supervisors: Lisa E. Baker, Ph.D., Harmony I. Risca, Ph.D.
Description: Assessed the rewarding effects of synthetic cathinones in isolation and in combination with other psychostimulants.

2018 – 2020 **Undergraduate Research Assistant**
Location: Western Michigan University
Behavioral Economic Research Collaborative
Supervisors: Anthony DeFulio, Ph.D., Mark Rzeszutek, Ph.D.
Description: Examined the role of how preclinical behavioral contrast models mediate the value of reinforcers.

Undergraduate Mentees: Cameron Evans, Luke Sawyers, Lidia Olyha, Ellie Quinkert, Joshua Hales, Jocelyn Martin, Meagan Blanchard, Stephanie Hutchinson, Emily Campell, Maddie Hein, Mallory Wardell, Leanna Peterzell
High School Mentees: Benjamin Haase

Publications

1. **Shaykin, J.D.**, Olyha, L.N., Van Doorn C.E., Hales, J.D., Chandler, Hopkins, D.M., C.M., Nixon, Beckmann, J., Pauly, J.R., K., Bardo, M.T. (2024). Effects of Ethanol Consumption in Group and Isolate Housed Adolescent Male Rats on Adult Drinking and Ethanol-Nicotine Co-Use. *Drug and Alcohol Dependence Reports.* DOI*: 10.1016/j.dadr.2024.100277*
2. **Shaykin, J.D.**, Denehy, E.D., Martin, J.R., Chandler, C.M., Luo, D., Taylor, C.E., Sunshine, M.D., Turner, J.R., Alilain W.J., Prisinzano, T.E., Bardo, M.T. (2024). Targeting Alpha1- and Alpha2- Adrenergic Receptors as a Countermeasure for Fentanyl-Induced Locomotor and Respiratory Depression. *Environmental Toxicology and Pharmacology.* DOI: *10.1016/j.etap.2024.104527*
3. Loan, Y.V., Luo, D., Johnson, K., Denehy, E.D., Songrady, J.C., Martin, J.R., Trivedi, R., Alsum, A., **Shaykin, J.D.**, Chaudhary, C.L., Woloshin, E.J., Kornberger, L., Bhuiyan, N., Parkin, S., Jian, Q., Che, T., Allilain, W.J., Turner, J.R., Bardo, M.T., Prisinzano, T.E. (2024). Searching for Synthetic Opioid Rescue Agents: Identification of a Potent Opioid Agonist with Reduced Respiratory Depression. *Journal of Medicinal Chemistry.* DOI: 10.1021/acs.jmedchem.4c00333
4. Chandler, C.M., **Shaykin, J.D.**, Peng, H., Pauly, J.R., Nixon, K., & Bardo M.T. (2022). Effects of Voluntary Adolescent Intermittent Alcohol Exposure on Social Isolation on Adult Intake in Male Rats. *Alcohol*, 104, 13-21. [PMCID: PMC8885928]. DOI: 10.1016/j.drugalcdep.2022.109298
5. **Shaykin, J.D*.**, Malone, S.G*., Stairs, D.J., & Bardo M.T. (2022). The Neurobehavioral Effects of Environmental Enrichment and Drug Abuse Vulnerability: An Updated Review. *Pharmacology, Biochemistry and Behavior*, 221:173471. [PMCID: PMC10189610]. DOI: 10.1016/j.pbb.2022.173471 *shared first-author
6. **Shaykin, J.D.**, Baker L.E. (under revision). Conditioned Place Preference with Low Dose Mixtures of 3,4-methylenedioxypyrovalerone (MDPV) and α-pyrrolidinopentiophenone (α-PVP) in Male and Female Sprague-Dawley Rats. *Pharmacology, Biochemistry and Behavior.*
7. Keady, J.V*., **Shaykin, J.D***., Ortinski, P.I., Charnigo, R.J., Xia, M., Denehy, E.D., Prantzalos, E.R., Bumgardner, C., Miller, J.B., Turner, J.R., Bardo, M.T. (in preparation). Genomic Assessment of the Prefrontal Cortex in Differential Responsivity of Sucrose Preference and Fentanyl Escalation in Sprague-Dawley Rats. *shared first-author

National and International Conference Presentations and Posters

Shaykin, J.D., Keady, J.V., Prantzalos, E.R., Xia, M., Bumgardner, C., Miller, J., Charnigo, R.J., Ortinski, P.I., Turner, J.R., Bardo, M.T. (June 2024) Genomic Assessment of the Prefrontal Cortex in Differential Responsivity of Sucrose Preference and Fentanyl Escalation in Sprague-Dawley Rats. *The College on Problems of Drug Dependence.*

Shaykin, J.D., Keady, J.V., Prantzalos, E.R., Xia, M., Charnigo, R.J., Ortinski, P.I., Turner, J.R., Bardo, M.T. (April 2024). Genomic Assessment of the Prefrontal Cortex in Differential Responsivity of Sucrose Preference and Fentanyl Escalation in Sprague-Dawley Rats. *University of Kentucky Substance Use Research Event.*

Martin, J.R., **Shaykin, J.D.**, Denehy, E.D., Songrady, J.C., Luo, D., Alilain W.J., Turner, J.R., Bardo, M.T., Prisinzano, T.E. (November 2023). Novel Compounds EO-139 and YZ-166 as Countermeasures for Reversing Opioid-Induced Antinociception, Motor Incapacitation and Respiratory Depression. *Neuroscience Clinical-Translational Research Symposium.*

Shaykin, J.D., Denehy, E.D., Martin, J.R., Chandler, C.M., Luo, D., Taylor, C.E., Sunshine, M.D., Turner, J.R., Alilain W.J., Prisinzano, T.E., Bardo, M.T. (June 2023). Targeting Alpha1- and Alpha2- Adrenergic Receptors as a Countermeasure for Fentanyl-Induced Locomotor and Respiratory Depression. *The College on Problems of Drug Dependence.*

Shaykin, J.D., Denehy, E.D., Martin, J.R., Chandler, C.M., Luo, D., Taylor, C.E., Sunshine, M.D., Turner, J.R., Alilain W.J., Prisinzano, T.E., Bardo, M.T. (April 2023). Targeting Alpha1- and Alpha2- Adrenergic Receptors as a Countermeasure for Fentanyl-Induced Locomotor and Respiratory Depression. *University of Kentucky Substance Use Research Event.*

Shaykin, J.D., Martin, J.R., Chandler C.M., Denehy, E.D., Turner, J.R., Alilain W.J., Prisinzano, T.E., Bardo, M.T. (September 2022). Alpha2 Noradrenergic Receptor as a Target for Reversing Fentanyl-Induced Respiratory Depression. *Neuroscience Clinical-Translational Research Symposium.*

Shaykin, J.D., Chandler, C.M., Nixon, K., Bardo, M.T. (June 2022). Effects of Ethanol Consumption in Group and Isolate Housed Adolescent Male Rats on Adult Drinking and Ethanol-Nicotine Co-Use. *The College on Problems of Drug Dependence.*

Shaykin, J.D., Chandler, C.M., Nixon, K., Olyha, L.N., Bardo, M.T. (June 2022). Social Isolation Combined with Adolescent Voluntary Ethanol Exposure Increases Subsequent Addiction Vulnerability. *European Behavioral Pharmacology Society.*

Shaykin, J.D., Chandler, C.M., Nixon, K., Bardo, M.T. (February 2022). Effects of Ethanol Consumption in Group and Isolate Housed Adolescent Male Rats on Adult Drinking and Ethanol-Nicotine Co-Use. *University of Kentucky Substance Use Research Event.*

Shaykin, J.D., Chandler, C.M., Bardo, M.T., (February 2021). Effects of Adolescent Ethanol Exposure via Intraperitoneal Injection on Voluntary Adult Ethanol-Nicotine Co-Use. *University of Kentucky Substance Use Research Event.*

Chandler, C.M., **Shaykin, J.D**., Nixon, K., and Bardo, M.T. (June 2021). Effects of Adolescent Intermittent Alcohol Exposure and Social Isolation on Voluntary Adult Alcohol Intake in Rats. *European Behavioral Pharmacology Society.*

Chandler, C.M., **Shaykin, J.D.**, Nixon, K., and Bardo, M.T. (June 2021). The Effects of Adolescent Intermittent Alcohol Exposure on Voluntary Adult Alcohol Intake and Alcohol and Nicotine Co-Use. *The College on Problems of Drug Dependence.*

Risca, H.I., Conway, C.N., **Shaykin, J.D.**, Baker, L.E. (October 2019). Conditioned Place Preference with Low Dose Mixtures of 3,4-methylenedioxypyrovalerone (MDPV) and 3,4-methylenedioxymethamphetamine (MDMA) in Male and Female Sprague-Dawley Rats. *Society for Neuroscience*.

Risca, H.I., Conway, C.N., **Shaykin, J.D.**, Baker, L.E. (May 2019). Conditioned Place Preference with Low Dose Mixtures of 3,4-methylenedioxypyrovalerone (MDPV) and 3,4-methylenedioxymethamphetamine (MDMA) in Male and Female Sprague-Dawley Rats. *Michigan Chapter of the Society for Neuroscience.*

Honors and Awards

2024 - 2025	NIDA T32 DA035200 Pre-doctoral Traineeship
2024	Cognitive Neuroscience Graduate Student Achievement Award
2024	CCTS Substance Use Disorder Travel Award ($1100)
2023	University of Kentucky Outstanding TA Award
2022	Robert Lipman Fellowship ($5000)
2022	European Behavioral Pharmacology Society Travel Award ($500)
2016-2020	Dean's List, WMU
2017-2020	Lurie Children's Children Scholarship
2019	College of Arts and Sciences Undergraduate Research and Creative Activities Award ($750)
2019	Lee Honors College Research and Creative Activities Award ($2000)
2019	PSI CHI Undergraduate Research Grant ($1500)

Professional Affiliations and Roles

2024-	University of Kentucky Local NIDA	Coordinator
2023-	MSTC Program – Paul Laurence Dunbar High School	Mentor
2023-	Psychology Graduate Student Representative	Member
2023-2024	Cognitive Neuroscience Professional Development Presentation	Coordinator
2023-	Kentucky Psychological Association Mentorship Program	Mentor
2021	Research Society on Alcoholism	Member
2020-	European Behavioral Pharmacology Society	Member
2020-	College on Problems of Drug Dependence	Member
2018	PSI CHI: The International Honor Society in Psychology	Treasurer
2016	Alpha Lambda Delta Honors Fraternity	Member

Teaching Experience

Teaching Assistant – University of Kentucky

Spring 2024	PSY 427 Cognitive Processes Lab	**Spring 2022**	PSY 333 Abnormal Psychology
Fall 2023	PSY 456 Behavioral Neuroscience Lab	**Fall 2021**	PSY 456 Behavioral Neuroscience Lab
Spring 2023	PSY 312 Brain and Behavior	**Spring 2021**	PSY 215 Experimental Psychology
Fall 2022	PSY 456 Behavioral Neuroscience Lab	**Fall 2020**	PSY 215 Experimental Psychology

Teaching Assistant – Western Michigan University

Spring 2019 PSY 3300 Advanced Research Methods

Software and Programming Experience

Software/Tools: Med-PC; Prism; SAS; RStudio; SPSS; JMP; OBS Studio; ImageJ; Excel, BioRender; Galaxy; Python.