

Beth Wiese

Email: [bmwiese@email.arizona.edu](mailto:bmwiese@email.arizona.edu)

## Curriculum Vitae

### Educational History:

- 2018-Present Ph.D. in Neuroscience, Minor in Pharmacology, Current GPA 3.885, University of Arizona, *Projected Graduation Spring 2023*
- 2016-2018 Masters of Arts in Psychology, Emphasis in Behavioral Neuroscience, Final GPA 3.9, University of Missouri – St. Louis
- 2012-2016 Bachelor of Arts in Psychology, Minor in Philosophy, Neuroscience Certificate, Final GPA 3.644, University of Missouri- St. Louis
- 2003-2005 Associates of Arts in Radiologic Technology, Final GPA 3.177, St Louis Community College-Forrest Park
- 2001-2003 General Education Requirements, St. Charles Community College, Final GPA 3.211, Transferred to St. Louis Community College for completion of degree

### Major Fields:

My interests have long focused on work to curb the opioid epidemic. Through outreach volunteering beginning during my undergraduate degree at the University of Missouri – St Louis and lab work during my time at Washington University in St. Louis and now at the University of Arizona, I have a well-rounded understanding of the problems faced by individuals suffering from Opioid Use Disorders and the mechanistic underpinnings of opioid and cannabinoid pharmacology via bench research. **I focus my efforts on the investigation of opioid/cannabinoid interactions using cannabinoids as a viable strategy to help individuals cease their opioid use to facilitate an end to the opioid epidemic.**

### Employment/Research Experience:

- 2019-Present **Graduate Research Assistant - Cannabinoid and opioid receptor interactions on respiratory depression, Principle Investigator: Dr. Tally Largent-Milnes, University of Arizona**  
Responsibilities: I am involved in the study of opioid and cannabinoid interactions on respiratory depression and within the preBötzing complex. I have utilized whole-body plethysmography chambers to evaluate changes in breaths per minute, tidal volume, and minute volume. I will also utilize electrophysiology to understand the exact functionality within the preBötzing complex in these conditions.
- 2018-2019 **Graduate Research Technician - Lab Rotations at University of Arizona, Principle Investigator: Dr. John Streicher, Dr. Tally Largent-Milnes, and Dr. Todd Vanderah**
- 2017-2018 **Research Technician I – Interaction between mu opioid receptors and CB1 cannabinoid receptors in the PAG, Principle Investigator: Dr. Adrienne Wilson-Poe, Washington University in St. Louis, Missouri**  
Responsibilities: I was involved in studies using rats that examine how cannabinoids are affected in the PAG during pain. I have performed intracranial cannulation and viral injection surgeries into the PAG. I have performed CFA injections into the paw of the rat as a pain model to induce inflammation. Additionally, I have conducted von Frey behavioral analysis to assess mechanical pain thresholds. I have used the cryostat to slice brain tissue that is used to perform in situ's and performed histology to confirm cannula placement.
- 2016-2018 **Volunteer Research Assistant – Anesthesiology and pain research with opioids in animal models, Principle Investigator: Dr. Jose Moron-Conception, Washington University in St. Louis, Missouri**  
Responsibilities: I was involved in studies with rats and mice. I have assisted in experiments on how opioids influence the SK2 channel in the CA1 area of the dorsal

hippocampus of mice. I have assisted in performing in situ hybridization, perfusions, and slicing tissue on the cryostat. I have also assisted in surgery prep for experiments looking at the role of the kappa opioid receptor in conditioned place aversion. Additionally, I have assisted in mounting slides with tissue for viewing, performed surgeries for intracranial injections in the PAG, and performed behavioral testing to assess pain thresholds.

2015-2018

**Research Assistant - Animal models in neuroscience, Principle Investigator: Dr. George Taylor**, University of Missouri – St. Louis

Responsibilities: I was involved in studies with rats and mice. Examining how salvia, a kappa opioid receptor agonist, affects learning and memory in rats. Also, I was involved in looking at the potential role of nicotine, an acetylcholine receptor agonist, at reducing experimentally induced ischemic (stroke) volume in mice. I am skilled at subcutaneous and intraperitoneal injections in mice and rats. I also ran behavioral paradigms such as open field and novel object in rats, vertical pole test and corner test in mice, and chronic mild stress paradigms in both rodents. I am proficient in necropsies with fresh brain and adrenal extractions as well as wet work following completion of the studies. Finally, I assisted in data analysis and interpretation of the collected data.

2015- 2016

**Research Assistant - Social psychology and stereotype threat**

**Principle Investigator Dr. Bettina Casad**, University of Missouri – St. Louis

Responsibilities: I ran participants through experimental protocols using electroencephalography (EEG) and electrocardiogram (ECG) and pulse rates in response to stereotype threat and analyzed results of NIH grant funded studies. I also cleaned and prepared EEG data for ERP analysis; prepared ECG data for heart rate variability analysis.

2015-2017

**Receptionist/ Administration Assistant/ Intake Assistant**

Community Psychology Service Center for Behavioral Health at the University of Missouri – St Louis

Responsibilities: We provide services to the children in the surrounding county to assess learning disabilities and psychological problems. Prepare letters of confirmation and instructions for appointment of child. Field phone calls for urgency of follow up and collect needed information in order to schedule client for needed evaluation. Review and close files after evaluation and ensure all necessary information is enclosed.

2015-2016

**Psi Chi Treasurer of the University of Missouri-St. Louis chapter**

Responsibilities: I assist in coordinating events, advertising and promoting the organization, increasing enrollment in our chapter. I have balanced the budget for the current semester and prepared a budget for the upcoming semester that will continue to ensure smooth operation of the UMSL chapter of PsiChi.

### **Teaching Experience**

Spring 2018

Teaching assistant for Child Maltreatment with Dr. Jerry Dunn

Spring 2018

Teaching assistant for General Psychology with Dr. Jennifer Sicilliani

Fall 2017

Teaching assistant for Social Psychology with Dr. Bettina Casad

Fall 2017

Teaching assistant for Cognitive Processes with Dr. Suzanne Welcome

2015-2016

**Statistics/Research Methods Tutor**, Multi-Cultural Student Center at the University of Missouri-St. Louis

Responsibilities: Meet with three students twice a week to work with and go over homework as well as provide additional explanations of statistical analysis to prepare them for their exams in class.

### **Honors**

(2016)

Cum Lade graduate

(2012)

Dean's List recipient University of Missouri-St. Louis

- (2013) Dean's List recipient University of Missouri-St. Louis  
 (2014) Dean's List recipient University of Missouri-St. Louis  
 (2015) Dean's List recipient University of Missouri-St. Louis  
 (2016) Dean's List recipient University of Missouri-St. Louis  
 (2013) Psychology Chair's List Recipient University of Missouri-St. Louis  
 (2014) Psychology Chair's List Recipient University of Missouri-St. Louis

**Grants and Awards**

- 2020 Society for Neuroscience Trainee Professional Development Award \$100 – *Awarded to cover registration for the Society for Neuroscience Global Connectome Virtual Event, January 2021.*
- 2020 ICRS Travel Award \$750 – *Awarded to cover registration for the International Cannabis Research Society conference in Galway, Ireland July 2020. Unable to attend due to COVID-19*
- 2020 Neuroscience Galileo Scholarship through the College of Science \$1000
- 2019 GPSC Travel Award 2019 \$750 – *Awarded to cover housing to attend the Society for Neuroscience conference in Chicago, IL October 2019*
- 2019 NRSC Travel Award 2019-2020 \$750 – *Awarded to cover travel to and from the Society for Neuroscience conference in Chicago, IL October 2019*
- 2019 INRC Travel Award \$750 – *Awarded to cover travel to and from the International Narcotics Research Conference in New York, NY July 2019*
- 2019 ICRS Travel Award \$650 – *Awarded to cover travel to and from the International Cannabis Research Society conference in Bethesda, MD June 2019*
- 2018 NRSC Travel Award 2018-2019 \$700 – *Awarded to cover travel to and from the Society for Neuroscience conference in San Diego, CA November 2018*
- 2017 University of Missouri – St Louis Graduate Research Symposium overall winner 1<sup>st</sup> place \$500 *Steroid Influences on Learning and Memory in Female Rats*
- 2017 University of Missouri – St Louis Graduate Research Symposium 2<sup>nd</sup> place Masters category \$200 *Steroid Influences on Learning and Memory in Female Rats*
- 2016 CAS Undergraduate Research Award \$1000 - *Economics and Alcohol comparisons of Greek and US college students*
- 2016 Kathy Van Dyke Scholarship Award \$500 – *Chosen by a faculty member and awarded to an outstanding student within the psychology department that shows strong leadership abilities and are on track to make significant contributions to the field of psychology*

**Service**

- 2021 Roundtable presenter at Diversity Voices to Prevent Youth Substance Use and Misuse February 10<sup>th</sup>, 2021
- 2020 Organizer for Donation to Distribution Coat Drive for our community's houseless population
- 2020-Present Needle drop box coalition
- 2020 End homelessness coalition
- 2019-Present Volunteer and organizer for CoSIT needle exchange at Z Mansion (Supervisor Tom Hill)
- 2019-Present Founder and Volunteer for Church of Safe Injection-Tucson (CoSIT)
- 2018-Present Volunteer for Sonoran Prevention Works (Supervisor Stacey Cope and Rachel Sherman)
- 2018-Present Volunteer for Southern Arizona AIDS Foundation (SAAF) needle exchange (Supervisor Alethea Do)
- 2017-2018 Volunteer for Missouri Network for Opiate Reform and Recovery needle exchange (Supervisor Michelle Charbonnier and Chad Sabora)
- 2010-2014 Volunteer as a Peer Counselor for Addiction Treatment Strategies (Supervisor John Crum)

- 2013 Presenter of Public Service Announcement on Heroin in the Community (D.A.R.E. Officers of Missouri State Conference)
- 2012 Presenter of Public Service Announcement on Heroin in the Community (Fox 2 News)
- 2012 Presenter of Public Service Announcement on Heroin in the Community (Webster Groves High School)

### Memberships

- 2019-present International Cannabis Research Society (ICRS) – Student member
- 2019 International Narcotics Research Conference (INRC) – Student member
- 2018-present Society for Neuroscience – Student member
- 2014-2018 Association for Psychological Science (APS) – Student member
- 2014-2018 American Psychological Association (APA) – Student member
- 2015-present PSI CHI International Honor Society in Psychology
- 2015-2018 Golden Key International Honor Society
- 2015-2018 Society for Personality and Social Psychology (SPSP)

### Publications

- Wiese B M**, Alvarez A, Largent-Milnes T M. Respiratory Functionality in Response to Opioids and Cannabinoids Review. *Plans for preparation in 2020.*
- Wiese B M**, Liktor-Busa E, Levine A, Couture S, Nikas S P, Ji L, Liu Y, Spigelman I, Makriyannis A, Largent-Milnes T M, Vanderah T W. Brain Penetrant, and not peripherally restricted, Synthetic Cannabinoid 1 Receptor Agonists Induce Respiratory Depression and Promote Morphine-Mediated Respiratory Depression. *In preparation for submission in 2020 (possibly Nature Communications).*
- Wiese B M**, Liktor-Busa E, Levine A, Nikas S P, Ji L, Liu Y, Makriyannis A, Mackie K, Largent-Milnes T M, Vanderah T W. CB2 Agonism with AM2301 Mitigates Morphine Induced Respiratory Depression. *Cannabis Cannabinoid Res.; Accepted for publication October 7, 2020.*
- Liktor-Busa, E., Blawn, K. T., Kellohen, K. L., **Wiese, B. M.**, Verkhovsky, V., Wahl, J., Vivek, A., Palomino, S. M., Davis, T. P., Vanderah, T. W., & Largent-Milnes, T. M. (2020). Functional NHE1 expression is critical to blood brain barrier integrity and sumatriptan blood to brain uptake. *PLoS one*, 15(5), e0227463. <https://doi.org/10.1371/journal.pone.0227463>
- Wiese B**, Wilson-Poe AR. Emerging Evidence for Cannabis' Role in Opioid Use Disorder. *Cannabis Cannabinoid Res.* 2018 Sep 1;3(1);179-189.

### Posters and Presentations

- Wiese B M**, Liktor-Busa E, Levine A, Couture S, Nikas S P, Ji L, Liu Y, Mackie K, Makriyannis A, Largent-Milnes T M, Vanderah T W (2021, January) Cannabinoids Influence on Respiratory Function and Their Impact on morphine Induced Respiratory Depression. Poster presented at virtual Society for Neuroscience Conference.
- Wiese B M**, Liktor-Busa E, Levine A, Couture S, Nikas S P, Ji L, Liu Y, Mackie K, Makriyannis A, Largent-Milnes T M, Vanderah T W (2020, July) The Role of Cannabinoids in Respiratory Function and Their Impact on Morphine Induced Respiratory Depression. Accepted oral presentation and unable to present due to COVID-19 at the International Cannabis Research Society Galway, Ireland.
- Wiese B M**, Liktor-Busa E, Levine A, Couture S, Nikas S P, Ji L, Liu Y, Spigelman I, Makriyannis A, Largent-Milnes T M, Vanderah T W (2020, March) Centrally Active CB2 Agonist AM2301 Attenuates Morphine Induced Respiratory Depression. Poster presented at BIO5 Research Showcase, University of Arizona, Tucson.
- Wiese B M**, Liktor-Busa E, Levine A, Couture S, Nikas S P, Ji L, Liu Y, Spigelman I, Makriyannis A, Largent-Milnes T M, Vanderah T W (2019, December) Centrally Active CB2 Agonist AM2301 Attenuates Morphine Induced Respiratory Depression. Poster presented at GIDP Student Showcase at University of Arizona, Tucson.
- Wiese, Beth M.** (2019, November) As Opioids Take Our Breath Away, Can Cannabinoids Return It? Invited speaker at the Neuroscience Community Data-Blitz at the University of Arizona, Tucson.

- Wiese B M**, Liktor-Busa E, Levine A, Couture S, Nikas S P, Ji L, Liu Y, Spigelman I, Makriyannis A, Largent-Milnes T M, Vanderah T W (2019, October) Centrally Active CB2 Agonist AM2301 Attenuates Morphine Induced Respiratory Depression. Poster presented at Society for Neuroscience Conference Chicago, IL.
- Wiese B M**, Liktor-Busa E, Spigelman I, Makriyannis A, Largent-Milnes T M, Vanderah T W (2019, July) The Role of Cannabinoid Receptor Mediation of Opioid Induced Respiratory Depression in the preBötzing Complex. Poster presented at International Narcotics Research Conference New York, NY.
- Wiese B M**, Liktor-Busa E, Spigelman I, Makriyannis A, Largent-Milnes T M, Vanderah T W (2019, June) The Role of Cannabinoid Receptor Mediation of Opioid Induced Respiratory Depression in the preBötzing Complex. Poster presented at International Cannabis Research Society Bethesda, MD.
- Wiese, Beth M.** (2019, May) Breathing is the key to life: Opioids and Cannabinoids on Respiratory Depression. Competing speaker at the Annual Pharmacology Data-Blitz at the University of Arizona, Tucson.
- Wiese, Beth** (2019, April) The Exit, Not the Gateway: Therapeutic Cannabis for Opioid Use Disorder and Relapse Prevention. Invited speaker at University of Southern Florida CAMLS center Tampa, FL at Patients out of Time conference.
- Wiese, Beth**, Taylor, George T. (2017, April) Steroidal Influences on Learning and Memory in Female Rats. Poster presented at University of Missouri – St Louis Graduate research symposium.
- Wiese, Beth** (2017, March) Opioid Withdrawal and the Kappa Opioid Receptor. Experiment proposal; Presentation. University of Missouri – St Louis Department of Psychological Sciences.
- Wiese, Beth**, Mauer, Tom, Hoffman, Jacob, Taylor, George (2016, May) Infarct Volume Post-Stroke Impact with and without Nicotine. Poster presented at University of Missouri – St Louis undergraduate research symposium.
- Cloud, Meg, **Wiese, Beth**, High, Veronica, Flores, Abdiel J., and Casad, Bettina J. (2016, May) Exposure Effects Impact IAT D-Scores Severity and Perceptions of Racial Test Accuracy. Poster presented at Midwest Psychological Association conference in Chicago, IL.
- High, Veronica, **Wiese, Beth**, Cloud, Meg, Flores, Abdiel J., and Casad, Bettina J. (2016, May) Perceptions of IAT Accuracy After Experiencing Cognitive Inconsistency. Poster presented at Association for Psychological Science conference in Chicago, IL.
- High, Veronica, Pensoneau, Dana M, **Wiese, Beth**, Cloud, Meg, Flores, Abdiel J., and Casad, Bettina J. (2016, January) Reactions to IAT Results After Experiencing Cognitive Inconsistency. Poster presented at the annual Society for Personality and Social Psychology conference in San Diego, California.

### **CERTIFICATION/SPECIAL SKILLS**

Microsoft Office (Word, Excel, PowerPoint)  
 Statistical Package for Social Sciences (SPSS)  
 Qualtrics  
 Survey Monkey for data collection  
 Observer coding  
 ANYmaze tracking system  
 Prism data analysis