

Cody J Wenthur, PharmD, PhD

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 777 Highland Ave
 Madison, WI 53705

EDUCATION

- Aug 2011 – Aug 2015 **Doctor of Philosophy – Pharmacology**
 Vanderbilt University – School of Medicine
- Aug 2005 – May 2011 **Doctor of Pharmacy**
 Purdue University – College of Pharmacy

PROFESSIONAL APPOINTMENTS

- Sept 2020 – Present **Founding Director, Master of Science in Pharmaceutical Sciences -
 Psychoactive Pharmaceutical Investigation**
 University of Wisconsin – Madison, School of Pharmacy
- Aug 2018 – Present **Assistant Professor**
 University of Wisconsin – Madison, School of Pharmacy
- Aug 2015 – July 2018 **Postdoctoral Fellow**
 The Scripps Research Institute - La Jolla, Department of Chemistry

AWARDS

- Apr 2020 Biobehavioral Research Award for Innovative New Scientists - NIMH
- Sept 2017 Jared F Purton Memorial Award – TSRI Society of Fellows
- April 2011 Award for Achievement in Pharmaceutical Research - Merck

PUBLICATIONS

33. Worob A, **Wenthur CJ**. Development of Cross-Reactive Antibodies for the Identification and Treatment of Synthetic Cannabinoid Receptor Agonist Toxicity. *Vaccines*; 10(8):1253. 2022.
32. Georgieva JV, Katt M, Ye Z, Umlauf BJ, **Wenthur CJ**, Shusta EV. The 46.1 Antibody Mediates Neurotensin Uptake into the CNS and the Effects Depend on the Route of Intravenous Administration. *Pharmaceutics*; 14(8):1706. 2022.
31. Chitwood C, Haug KL, **Wenthur CJ**, Gillis C, Maloney JD, Johnson D. Evaluation of Prescribing Patterns Following Surgical Procedures in Opioid Naïve Patients at a Veterans Affairs Teaching Hospital. *Military Medicine*; 22 Apr 2022. Online Ahead of Print.
30. Navarro G, Rea W, Quiroz C, Moreno E, Gomez D, **Wenthur CJ**, Casadó V, Leggio L, Hearing M, Ferre S. Complexes of ghrelin GHS-R1a, GHS-R1b and dopamine D1 receptors localized in the ventral tegmental area as main mediators of the dopaminergic effects of ghrelin. *J Neurosci*.;42(6):940-953. 2022.
29. Wartenweiler V, **Wenthur CJ**. Pocket guide - CPIC and FDA labeling guidelines. *J Pharm Soc Wis.*;24(6):44-45. 2021.

28. Zheng Z, Kyzer JL, Worob A, **Wenthur CJ**. Family of Structurally Related Bioconjugates Yields Antibodies with Differential Selectivity against Ketamine and 6-Hydroxynorketamine. *ACS Chemical Neuroscience*;12(21):4113-4122. 2021.
27. Banks MI, Zahid Z, Jones NT, Sultan ZW, **Wenthur CJ**. Catalysts for Change: The Neurobiology of Psychedelics. *Molecular Biology of the Cell*, 32 (12); 1135 – 1144. 2021.
26. Wartenweiler VM, Chung GS, Stuart A, **Wenthur CJ**. Pharmacy Stakeholder Reports on Ethical and Logistical Considerations in Anti-Opioid Vaccine Development. *BMC Medical Ethics*, 22; (30). 2021.
25. Wu S, Frey T, **Wenthur CJ**. Naloxone acceptance by outpatient veterans: A risk-prioritized telephone outreach event. *Research in Social and Administrative Pharmacy*. 17(5):1017-1020. 2021.
24. Kyzer JL, McGuire M, Park H, Belz TF, Bonakdar R, Janda KD, **Wenthur CJ**. Anti-opioid antibodies in individuals using chronic opioid therapy for lower back pain. *ACS Pharmacology and Translational Science*, 3; (5): 896 – 906. 2020.
23. Kyzer J, **Wenthur CJ**. Classics in Chemical Neuroscience: Buprenorphine. *ACS Chemical Neuroscience*, 11; (10): 1385-1399. 2020.
22. Worob A, **Wenthur CJ**. Dark Classics in Chemical Neuroscience: Synthetic Cannabinoids (Spice/K2). *ACS Chemical Neuroscience*, 11; (23): 3881-3892. 2020.
21. Hwang CS, Smith LC, **Wenthur CJ**, Ellis B, Zhou B, Janda KD. Heroin vaccine: Using titer, affinity, antinociception as metrics when examining sex and strain differences. *Vaccine*, 37: 4155-4163. 2019.
20. **Wenthur CJ**, Gautam R, Zhou B, Vendruscolo LF, Leggio L, Janda KD. Ghrelin Receptor Influence on Cocaine Reward is Not Directly Dependent on Peripheral Acyl-Ghrelin. *Scientific Reports*, 9 (1): 1841. 2019.
19. **Wenthur CJ**, Legenza L, Weinfurter N, Lorenzen A, Bowen D. The pharmacist's role in combating statewide epidemics. *Journal of the Pharmacy Society of Wisconsin*, 22; (2):8-20. 2019.
18. Hwang CS, Bremer PT, **Wenthur CJ**, Ho SO, Chiang S, Ellis B, Zhou B, Fujii G, Janda KD. Enhancing efficacy and stability of an anti-heroin vaccine: Examination of antinociception, opioid binding profile, and lethality. *Molecular Pharmaceutics*, 15; (3):1062-1072. 2018.
17. **Wenthur CJ**, Zhao B, Janda KD. Vaccine-driven pharmacologic dissection and mitigation of fenethylamine psychoactivity. *Nature*, 548; (7668):476-479. 2017.
16. **Wenthur CJ**, Cai X, Ellis BA, Janda KD. Augmenting the efficacy of anti-cocaine catalytic antibodies through chimeric hapten design and combinatorial vaccination. *Bioorganic and Medicinal Chemistry Letters*. 27; (16):3666-3668. 2017.
15. Gooyit MD*, Miranda PO*, **Wenthur CJ***, Ducime A, Janda KD. Influencing antibody-mediated attenuation of methamphetamine CNS distribution through vaccine linker design. *ACS Chemical Neuroscience*. 8; (3):468-472. 2017.
14. Kimishima A, **Wenthur CJ**, Zhou B, Janda KD. An advance in prescription opioid vaccines: Overdose mortality reduction and extraordinary alteration of drug half-life. *ACS Chemical Biology*. 12; (1):36-40. 2017.
13. **Wenthur CJ**. Classics in chemical neuroscience: Methylphenidate. *ACS Chemical Neuroscience*. 7; (8):1030-40. 2016.

*Equal contribution

12. Kimishima A*, **Wenthur CJ***, Eubanks LM, Sato S, Janda KD. Cocaine vaccine development: Evaluation of carrier and adjuvant combinations that activate multiple toll-like receptors. *Molecular Pharmaceutics*. 13; (11):3884-3890. 2016. *Equal contribution
11. Harris TL*, **Wenthur CJ***, Diego-Taboada A, Mackenzie G, Corbitt TS, Janda KD. Lycopodium clavatum exine microcapsules enable safe oral delivery of 3,4-diaminopyridine for treatment of botulinum neurotoxin A intoxication. *Chemical Communications*. 52: 4187-90. 2016. *Equal contribution
10. Walker AG*, **Wenthur CJ***, Xiang Z, Rook JM, Emmitte KA, Lindsley CW, Conn PJ. Metabotropic glutamate receptor 3 (mGlu₃) activation is required for group II mGlu long-term depression in the medial prefrontal cortex and fear extinction learning. *Proceedings of the National Academy of Sciences USA*. 112; (4):1196-201. 2015. *Equal contribution
9. **Wenthur CJ**, Gentry PR, Mathews TP, Lindsley CW. Drugs for allosteric sites on receptors. *Annual Reviews in Pharmacology and Toxicology*. 54: 165-84. 2014.
8. **Wenthur CJ**, Morrison RD, Daniels JS, Conn PJ, Lindsley CW. Synthesis and SAR of substituted pyrazolo[1,5-a]quinazolines as dual mGlu(2)/mGlu(3) NAMs. *Bioorganic and Medicinal Chemistry Letters*. 24; (12):2693-8. 2014.
7. **Wenthur CJ**, Bennett MR, Lindsley CW. Classics in chemical neuroscience: Fluoxetine (Prozac™). *ACS Chemical Neuroscience*. 5; (1): 14-23. 2014.
6. **Wenthur CJ**, Morrison R, Felts AS, Smith KA, Engers JL, Byers FW, Daniels JS, Emmitte KA, Conn PJ, Lindsley CW. Discovery of (R)-(2-fluoro-4-((-4-methoxyphenyl)ethynyl)phenyl) (3-hydroxypiperidin-1-yl)methanone (ML337), an mGlu₃ selective and CNS penetrant negative allosteric modulator (NAM). *Journal of Medicinal Chemistry* 56; (12):5208-12. 2013.
5. Schellhase E, Liu E, Pastakia S, **Wenthur CJ**, Murawski MM, Jakait B, Wasike P. The development of care focused adherence-tracking dispensing database for HIV care in a resource-constrained setting. *Journal of Pharmaceutical Health Services Research* 4; (1):63-67. 2013.
4. **Wenthur CJ**, Romack BS, Vernon VP, Shelly JL, Harth BN, Lienhoop AD, Madison NR, Murawski MM. Opinions and experiences of Indiana pharmacists and student pharmacists: The need for substance abuse education. *Research in Social and Administrative Pharmacy* 9; (1):90-100. 2013.
3. **Wenthur CJ**, Lindsley CW. Classics in chemical neuroscience: Clozapine. *ACS Chemical Neuroscience* 4; (7):1018-25. 2013.
2. Sheffler DJ*, **Wenthur CJ***, Bruner JA*, Carrington SJ, Vinson PN, Gogi KK, Blobaum AL, Morrison RD, Vamos M, Cosford ND, Stauffer SR, Daniels JS, Niswender CM, Conn PJ, Lindsley CW. Development of a novel, CNS-penetrant, metabotropic glutamate receptor 3 NAM probe derived from a closely related mGlu₅ PAM. *Bioorganic and Medicinal Chemistry Letters* 22; (12):3921-5. 2012. *Equal contribution
1. **Wenthur CJ**, Rodriguez GJ, Kuntz CP, Barker EL. Conformational flexibility of transmembrane helix VII of the human serotonin transporter impacts ion dependence and transport. *Biochemical Pharmacology* 80; (9):1418-426. 2010.

BOOK CHAPTERS

3. **Wenthur CJ**, Gallimore CE, Zorek JA. (With Editor) Mental Health. *Interprofessional Practice in Pharmacy: Featuring Illustrated Case Studies*. (2020) New York, NY: McGraw Hill Education. ISBN 9781260462425.

2. **Wenthur CJ**, Daniels JS, Morrison R, Engers JL, Niswender CM, Conn PJ, Lindsley CW. (2012) Development of a Second Generation mGlu3 NAM Probe. *Probe Reports from the NIH Molecular Libraries Program*. Bethesda, MD: National Center for Biotechnology Information (US).
1. Sheffler DJ, **Wenthur CJ**, Brunner JA, Daniels JS, Morrison RD, Blobaum AL, Dawson ES, Engers JL, Niswender CM, Conn PJ, Lindsley CW. (2012) Development of the First Selective mGlu₃ NAM from an mGlu₅ PAM Hit. *Probe Reports from the NIH Molecular Libraries Program*. Bethesda, MD: National Center for Biotechnology Information (US).

INVITED PRESENTATIONS

36. Psychedelic Science – Greatest Hits of 2022: Pre-Clinical. *UW-Madison 2nd Annual Psychedelic Symposium, Madison, WI*. Oct 2022
35. Psychedelic Transdiagnostic Efficacy in 4-D. *Horizons NY 15th Annual Conference, New York City, NY*. Oct 2022.
33. Potential Medical Uses of Psychedelic Compounds. *71st Annual Tom D Rowe Pharmacy Lectures, Ann Arbor, MI*. Oct 2022.
32. Psychedelic Baselines. *Borghesi-Mellon Workshop, Madison, WI*. Sept 2022.
31. Communicating Science Effectively. *NTP Re-Connectome, Madison, WI*. Sept 2022.
30. Sifting and Winnowing: Designing Haptens to Modify the Selectivity of Antibodies for Psychoactive Small Molecules. *University of Nebraska Medical School, Omaha, NE*. April 2022.
29. Polypharmacologic Mechanisms and Extrapharmacologic Influences for Rapidly-Acting Antidepressant Drugs. *Yale Psychedelic Science Group, New Haven, CT*. April 2022.
28. Psychedelics, Psychiatry, and Law. *New York University Intellectual Property and Entertainment Law Society / CannaLaw, New York, NY*. Jan 2022.
27. From Stress to Self-Identity: Environmental Influences on Psilocybin Outcomes Across Species. *Transdisciplinary Center for Psychoactive Substances Research Inaugural Forum. Madison, WI*. Nov 2021.
26. Polypharmacologic Mechanisms in Rapidly-Acting Antidepressant Drugs: Ketamine and Psilocybin. *Virginia Commonwealth University Dpt. Anatomy and Neurobiology. Richmond, VA*. Oct 2021
25. Psychedelics as Catalysts for Change. *Indiana University School of Medicine 2021 Postdoc Association Symposium. Indianapolis, IN*. Oct 2021.
24. My Career Story – The Transition to a Faculty Position. *Indiana University School of Medicine 2021 Postdoc Association Symposium. Indianapolis, IN*. Oct 2021.
23. Psychedelics in Psychiatry. *Genomind Grand Rounds. Chalfont, PA*. Oct 2021
22. Psychedelics in Pharmacy. *Psychiatry and Neurology Interest Group – UW Madison School of Pharmacy, Madison, WI*. Feb 2021.
21. Art, Music, and Land Activism Across Psychedelic Cultures. *Alliance for the Arts in Research Universities 8th Annual Conference, Madison, WI*. Oct 2020.

20. Negative Side Effects of Opioids Could Be Coming from Users' Own Immune Systems. *ACS Fall 2020 Virtual Meeting and Expo Press Conferences*. Aug 2020.
19. Toward Vaccination Against Opioids and Other Rewarding Psychoactive Substances. *Addiction Medicine Grand Rounds – UW Health*, Madison, WI. Mar 2020.
18. Cannabis and Cannabinoids: Impacts on Care of Dialysis Patients. *Wisconsin Dialysis Symposium – The Changing Climate of Care*, Madison, WI. Nov 2019.
17. Crossing the Translational Divide: Anti-Opioid Vaccination. *Medical University of South Carolina*. Charleston, SC. Nov 2019.
16. Leveraging the Immune System to Alter the Trajectory of Substance Use Disorders. *Undergraduate Neuroscience Club – UW Madison*. Madison, WI. Nov 2019.
15. Developing Vaccines for Substance Use Disorders. *University of Iowa*, Iowa City, IA. Oct 2019.
14. Barriers, Buy-In, and Biomarkers: Addressing Practical and Ethical Concerns in Opioid Vaccine Research. *Sonderegger Research Center Brown Bag Meeting*. Madison, WI. Oct 2019.
13. The DISSECTIV method uncovers hidden actions of complex psychoactive mixtures: Emergent polypharmacology in fenethylamine. *81st Annual Meeting of the College on Problems of Drug Dependence*, San Antonio, TX. June 2019.
12. Investigating Antibody Responses Following Chronic Opioid Use in Lower Back Pain. *Pharmaceutical Sciences Retreat – UW Madison*. Madison, WI. May 2019.
11. Next-Generation Substance Use Disorder Therapeutics. *Pre-Pharmacy Interest Group – UW Madison*. Madison, WI. Nov 2018.
10. Tools for Mitigating Opioid Misuse. *Advanced Pharmacy Practice Experience Seminar, UW Madison*, Madison WI. Oct 2018.
9. Immunopharmacotherapy. *Psychiatry and Neurology Interest Group – UW Madison School of Pharmacy*. Madison, WI. Sept 2018.
8. Progress Toward Next-Generation Substance Use Disorder Therapeutics: Exploiting Complexity to Simplify Treatment. *Vanderbilt University Medical Center – Department of Clinical Pharmacology*. Nashville, TN. Jan 2018.
7. Immunopharmacotherapy: The pursuit of addiction vaccines. *UC – San Diego Graduate Student Orientation, Sociology Department*. San Diego, CA. Jan 2016.
6. Probing the Role of Metabotropic Glutamate Receptors 2 and 3 in Addiction. *VUMC/HHMI Molecular Medicine Forum*. Nashville, TN. June 2015.
5. Development of novel mGlu₃-selective tools provides new insights into mGlu₃ function. *8th International Meeting on Metabotropic Glutamate Receptors*. Taormina, Italy. Oct 2014.
4. Development and Characterization of Novel Tool Compounds for Group II Metabotropic Glutamate Receptors. *Vanderbilt-Meharry Pharmacology Retreat*, Nashville, TN. Oct 2012

3. Drug evaluation report – Dabigatran. *Pharmacy / Therapeutics Committee, St Mary's Hospital*. Evansville, IN. Dec 2010.
2. A Structural Analysis of Ion Dependence in Transmembrane Domain Seven of the Serotonin Transporter. *Dean's Summer Research Forum, Purdue University*, West Lafayette, IN. July 2009
1. Analyzing Drug Activity Using Click Chemistry Techniques. *Dean's Summer Research Forum, Purdue University*, West Lafayette, IN. July 2007

ABSTRACTS / POSTERS

29. Razidlo JA, Nerad JR, Jones NT, **Wenthur CJ**. Distinct time-dependent functional profiles of ketamine and psilocybin in a mouse model of fear response reveal potential differing utilities for the prevention of stress-associated psychiatric disorders. *Military Health Sciences Research Symposium*. Aug 2022.
28. Jones N, Zahid Z, Razidlo J, **Wenthur CJ**. Glucocorticoid release and modification of acute threat associated behaviors by Psilocybin. *ACS Spring 2022 Meeting*. Mar 2022.
27. Worob A, **Wenthur CJ**. Development of Cross-Reactive Antibodies for the Identification and Treatment of Synthetic Cannabinoid Receptor Agonist Toxicity. *SfN 50th Annual Meeting*. Nov 2021.
26. Zahid Z, Grady S, **Wenthur CJ**, Banks MI. Increased synaptic excitability in mouse hippocampus and prefrontal cortex following psychedelic administration. *SfN 50th Annual Meeting*. Nov 2021.
25. Razidlo J, Nerad J, **Wenthur CJ**. Ketamine and psilocybin on fear acquisition and extinction in mice. *SfN 50th Annual Meeting*. Nov 2021.
24. Jones N, Zahid Z, Grady S, **Wenthur CJ**. Role of HPA axis activation in psilocybin's effects in rodent models of anxious behaviors. *SfN 50th Annual Meeting*. Nov 2021.
23. Grady S, Zahid Z, **Wenthur CJ**, Banks MI. Time course of acute behavioral, endocrinological, and electrophysiological changes in response to administration of classical psychedelics and DMT analogues. *SfN 50th Annual Meeting*. Nov 2021.
22. Zheng Z, Kyzer JL, Worob A, **Wenthur CJ**. Development of conjugate vaccines providing differential selectivity profiles against ketamine and 6-hydroxynorketamine. *SfN 50th Annual Meeting*. Nov 2021.
21. Wartenweiler V, Chung GS, Stewart A, **Wenthur CJ**. Assessment of Ethical Concerns in the Clinical Translation of Anti-Opioid Vaccines. *SfN 50th Annual Meeting*. Nov 2021.
20. Chmielinski JC, **Wenthur CJ**, Frey TM. Clinical utility of pharmacogenomic testing in a veteran mental health population [Poster]. *CPNP Annual Meeting 2021*. Apr 2021.
19. Easterling JG, **Wenthur CJ**, Farrell M. Expanding Immunization Rates During a Pandemic. [Poster] *APhA Annual Meeting 2021*. March 2021.
18. Sultan ZW, Grady SM, Bastien HA, Zahid Z, **Wenthur CJ**, Banks MI. Electrophysiological Correlates of Acute Psilocybin in Mice [Poster]. *SfN Global Connectome*. Jan 2021
17. Jones NT, Zahid Z, Grady S, Sultan Z, Zheng Z, Banks M, **Wenthur CJ**. Chronic Corticosterone Exposure Blunts Psilocybin Anxiolysis in Mice [Poster]. *SfN Global Connectome*. Jan 2021

16. **Wenthur CJ**, Wartenweiler V, Chung G, Stewart A. Pharmacy Stakeholder Reports on Ethical and Logistical Considerations in Anti-opioid Vaccine Development [Poster]. ASHP Midyear 2020. Dec 2020.
15. Chmielinski JC, **Wenthur CJ**, Frey TM. Clinical utility of pharmacogenomic testing in a veteran mental health population [Poster]. ASHP Midyear 2020. Dec 2020.
14. Zheng Z, **Wenthur CJ**. Vaccine-driven Pharmacodynamic Dissection of Ketamine Psychoactivity [Poster]. ACS Fall 2020 Virtual Meeting. Aug 2020.
13. Kyzer JL, McGuire M, Belz TF, Bonakdar R, Janda KD, **Wenthur CJ**. Investigation of the Mechanism of Immunologic Response to Chronic Opioid Use [Poster]. ACS Fall 2020 Virtual Meeting. Aug 2020.
12. Wu S, Frey T, **Wenthur CJ**. Naloxone Acceptance by Outpatient Veterans: A Risk-prioritized Telephone Outreach Event [Poster]. CPNP Annual Meeting 2020. Apr 2020.
11. Wu S, Frey T, **Wenthur CJ**. Naloxone Acceptance by Outpatient Veterans: A Risk-prioritized Telephone Outreach Event [Poster]. ASHP Midyear 2019. Dec 2019.
10. Nickel C, Worob A, **Wenthur CJ**. Effects on Rodents of AMB-FUBINACA in Behavioral Cannabinoid Tetrad [Poster]. UW-Madison Undergraduate Research Poster Presentation. Dec 2019.
9. Worob A, **Wenthur CJ**. Cross-reactive Antibodies as Theranostic Tools Against Synthetic Cannabinoid Detection [Poster]. MIKIW 2019. Apr 2019.
8. Zheng Z, **Wenthur CJ**. Vaccine-driven Pharmacodynamic Dissection of Ketamine Psychoactivity [Poster]. MIKIW 2019. Apr 2019.
7. Wartenweiler V, Chung C, **Wenthur CJ**, Thankur T, Chewing B. Opinions of Wisconsin Student Pharmacists Concerning the Implementation of Novel Anti-Opioid Therapies for Substance Use Disorder [Poster]. UW-Madison PharmD/PharmTox Research Symposium 2019. Apr 2019.
6. Kyzer J, McGuire M, Blake S, Bonakdar R, Janda KD, **Wenthur CJ**. Investigation of Immunologic Responses Following Chronic Opioid Use to Treat Lower Back Pain [Poster]. Experimental Biology 2019. Apr 2019.
5. McGuire M, Kyzer J, Blake S, Bonakdar R, Janda KD, **Wenthur CJ**. Examination of Antibody Formation in Response to Chronic Opioid Use for Lower Back Pain [Poster]. UW-Madison Undergraduate Research Poster Presentation. Dec 2018.
4. **Wenthur CJ**, Morrison R, Walker AG, Daniels JS, Conn PJ, Lindsley CW. Development and characterization of a selective, CNS-penetrant metabotropic glutamate receptor 3 negative allosteric modulator [Poster]. 43rd Annual Meeting of the Society for Neuroscience. Nov 2013
3. **Wenthur CJ**, Morrison R, Walker AG, Daniels JS, Conn PJ, Lindsley CW. Development of VU0477950, a selective metabotropic glutamate receptor 3 (mGlu3) negative allosteric modulator (NAM) suitable for *in vitro* and *in vivo* applications [Poster]. 1st Annual Meeting of the Academic Drug Discovery Consortium. Oct 2013.
2. **Wenthur CJ**, Morrison R, Daniels JS, Lindsley CW. Development of mGlu₂ and mGlu₃ Negative Allosteric Modulators as Tools to Study Psychiatric Illness [Poster]. VUMC/HHMI CPMM Retreat. June 2014
1. **Wenthur CJ**, Morrison R, Daniels JS, Lindsley CW. Development of Novel mGlu₃ Negative Allosteric Modulators [Poster]. VUMC/HHMI CPMM Retreat. June 2013.

GRANTS

July 2022 – Jan 2023	Psilera Inc. Research Contract ◆ Primary Investigator	\$126,998
Nov 2021 – Nov 2022	Evjue Foundation “ <i>Pharmaceutical Inequalities: Reaching Out</i> ” ◆ Contributor	\$ 3,000
July 2021 – June 2023	WARF – Understanding and Reducing Inequalities Initiative. “ <i>Psychedelic Outcomes: Interaction of Environment, Self-Identity, and Success (POIESIS).</i> ” ◆ Primary Investigator	\$ 99, 974
Apr 2020 – Jan 2025	National Institute of Mental Health, R01 MH122742. “ <i>Deconvoluting Polypharmacologic Contributions of Rapidly-Acting Antidepressants.</i> ” ◆ Primary Investigator	\$2,245,000
Jan 2019 – Jan 2023	Brain-Body Well-Being Research Fund, School of Human Ecology, University of Wisconsin-Madison. “ <i>Role of Experience and Conscious Awareness in Psilocybin Treatment of Depression: Pilot Phase.</i> ” ◆ Co-Investigator	\$250,000
July 2019 – July 2020	Applied Research-WiSys Technology Advancement Grant Program, AR-WiTAG, “ <i>Discovery of Emmacin related dihydropyrimidine analogs as dihydrofolate reductase inhibitors with narrow and broad-spectrum antibiotic activity</i> ” ◆ Collaborator	\$45,000
Oct 2016 – Dec 2018	ALSAM Foundation, “ <i>Investigation of Harmful Immunologic Responses Following Chronic Opioid Use to Treat Lower Back Pain</i> ” ◆ Author / Sub-Investigator	\$289,000
Jan 2014 – Jan 2015	Vanderbilt Institute for Clinical and Translational Research, BV01019, “ <i>Identification of GRM Alleles that Elevate the Risk of Developing Substance Dependence</i> ” ◆ Primary Investigator	\$5,000
Sept 2013 – July 2017	NIH Loan Repayment Program, L30 DA036204, “ <i>Identification of GRM Alleles that Elevate the Risk of Developing Substance Dependence</i> ” ◆ Primary Investigator	\$72,000

FELLOWSHIPS

Aug 2015 – July 2018	NIDA F32 Fellowship, F32 DA043323 The Scripps Research Institute, La Jolla, CA Sponsor: <u>Kim Janda, PhD</u>
July 2012 – June 2014	NIGMS T32 Fellowship, T32 GM007628 Vanderbilt University, Nashville, TN Mentor and Thesis Committee: <u>Craig Lindsley, PhD</u> ; P Jeffrey Conn, PhD; Randy Blakely, PhD; Aaron Bowman, PhD; Joey Barnett, PhD

- May 2008 – April 2009 **John B. Data Fellowship**
Purdue University, West Lafayette, IN
Sponsor: Eric Barker, RPh, PhD
- May 2006 – Aug 2007 **Dean’s Summer Undergraduate Research Fellowship / Purdue and Carroll
County Cancer Center Research Fellowship**
Purdue University, West Lafayette, IN
Sponsor: V Jo Davisson, PhD

TEACHING EXPERIENCE

- Jan 2022 – Present
(30 Student Class) **Course Coordinator and Lecturer - PHARMACY 771 “CNS Drug Design,
Actions, and Applications II”**
UW-Madison, MS Program in Psychoactive Pharmaceutical Investigation
- Sept 2021 – Present
(30 Student Class) **Lecturer - NTP 632 – “Neuroscience of Psychedelics”**
UW-Madison, MS Program in Psychoactive Pharmaceutical Investigation
- Sept 2021 – Present
(30 Student Class) **Course Coordinator and Lecturer - PHARMACY 770 “CNS Drug Design,
Actions, and Applications I”**
UW-Madison, MS Program in Psychoactive Pharmaceutical Investigation
- Nov 2020
(150 Student Class) **Lecturer – ZOO 500 “Undergraduate Neurobiology Seminar”**
UW-Madison
- Sept 2020 - Present
(1 Individual Student) **Research Mentor – PGY1 Community Pharmacy Residency**
UW-Madison School of Pharmacy
- Sept 2020 - Present
(20 Student Class) **Lecturer – PHARM 800 “Research Ethics: Scientific Integrity and the
Responsible Conduct of Research”**
UW-Madison School of Pharmacy, T32 and ICTR Training Program Support
- Aug 2020
(1 Individual Student) **Clinical Instructor - PHARM 769 “Advanced Pharmacy Practice Experience
– Research”**
UW-Madison School of Pharmacy, PharmD Program
- Feb 2020
(1 Individual Resident) **Clinical Instructor – PGY2 Ambulatory Care Pharmacy Residency –
Academia Rotation**
UW Health – University Hospital
- Dec 2019 – Present
(2 Individual Students) **PhD Research Mentor**
UW-Madison Neuroscience Training Program
- Dec 2019 - Present
(1 Individual Student) **PhD Research Mentor**
UW-Madison Molecular and Cellular Pharmacology Training Program
- Nov 2019 – Present
(100 Student Class) **Lecturer – PHMPRAC 305 “Consumer Self-Care & Over-the-Counter Drugs**
UW-Madison School of Pharmacy, Undergraduate Teaching
- Oct 2019 - Present
(140 Student Class) **Lecturer – PHMPRAC 555 “Pharmacotherapy I”**
UW-Madison School of Pharmacy, PharmD Program

Sept 2019 – Oct 2019 (18 Student Class)	Course Co-Coordinator and Lecturer – NTP 900 “Neuroscience Seminar” UW-Madison Neuroscience Training Program
Sept 2019 - Present (33 Student Class)	Lecturer - OB/GYN 955 “Responsible Conduct in Research” UW-Madison Graduate School T32 Training Program Support
Sept 2019 - Present (24 Student Class)	Lecturer – PHMSCI 780 “Principles of Pharmaceutical Sciences” UW-Madison Graduate Program in Pharmaceutical Sciences
Aug 2019 – Present (2 Individual Residents)	Research Mentor – PGY2 Psychiatric Pharmacy Residency William S. Middleton Veterans Administration Hospital
Aug 2019 – Present (80 Individual Students)	Clinical Instructor – PHARM 760 Project Presentation Review UW-Madison School of Pharmacy, PharmD Program
Mar 2019 - Present (80 Student Class)	Lecturer – PHARM 640 “Appropriate Use of Abused Drugs” UW-Madison School of Pharmacy, PharmD Program
Feb 2019 - Present (13 Student Class)	Lecturer–PHMCOL-M 781 “Molecular and Cellular Principles in Pharmacology” UW-Madison Molecular and Cellular Pharmacology Training Program
Feb 2019 - Present (140 Student Class)	Lecturer – PHMPRAC 654 “Integrated Pharmacotherapy Skills IV” UW-Madison School of Pharmacy, PharmD Program
Jan 2019 (5 Student Class)	Course Co-Coordinator and Lecturer – PHARM 490 “Topics in Neurology” UW-Madison School of Pharmacy, PharmD Program
Dec 2018 - Present (2 Individual Students)	PhD Research Mentor UW-Madison Graduate Program in Pharmaceutical Sciences
Dec 2018 - Present (140 Student Class)	Lecturer – PHARMACY 645 “Pharmaceutical Biotechnology and Pharmacogenomics” UW-Madison School of Pharmacy, PharmD Program
Nov 2018 – Present (5 Individual Students)	T32 Trainer and Rotation Mentor UW-Madison Neuroscience Training Program
Sept 2018 – Sept 2019 (140 Student Class)	Consultant and Lab Reviewer – PHMPRAC 653 “Integrated Pharmacotherapy Skills I” UW-Madison School of Pharmacy, PharmD Program
Aug 2018 – Present (5 Individual Students)	Rotation Mentor UW-Madison Graduate Program in Pharmaceutical Sciences
Aug 2018 – Present (3 Individual Students)	T32 Trainer and Rotation Mentor UW-Madison Molecular and Cellular Pharmacology Training Program
Aug 2018 – Present (6 Individual Students)	Independent Study Advisor – PHMSCI 699 UW- Madison School of Pharmacy
Aug 2018 – Present (3 Individual Students)	Independent Study Advisor – PHMPRAC 699 UW- Madison School of Pharmacy

June 2015 (30 Student Class)	Short Course Instructor – “Mastering Medicinal Chemistry” 14 th World Preclinical Congress, Boston, MA
Jan 2015 – Feb 2015 (25 Student Class)	Teaching Assistant – “Introduction to Translational Research” Vanderbilt University, Nashville, TN
June 2011 – Mar 2015 (5 Individual Students)	Undergraduate Research Mentor in Medicinal Chemistry Vanderbilt University, Nashville, TN
May 2008 – July 2008 (1 Individual Student)	Undergraduate Research Mentor in Chemical Biology Purdue University, West Lafayette, IN

CLINICAL DUTIES

May 2021	COVID-19 Vaccinator – Community Outreach UW-Madison, Fitchburg Family Pharmacy, Boys & Girls Club of Madison
April 2020 – May 2020	Site Coordinator COVID-19 Isolation Site, Lowell Center, Madison, WI
Nov 2018 – Present	Clinical Instructor UW-Madison School of Pharmacy Experiential Education Program
July 2011 – July 2015	Pharmacist Werner Drug Store, Tell City, IN
Mar 2011 – Apr 2011	Advanced Clerkship – Musculoskeletal Drug Discovery Eli Lilly and Co., Indianapolis, IN Supervisor: Henry Bryant, RPh, PhD
Feb 2011	Advanced Clerkship – Ambulatory Care IU Health Clinic, Greenwood, IN Supervisor: Richard Blauvelt, RPh
Jan 2011	Advanced Clerkship – Community Operations Target Pharmacy, Indianapolis, IN Supervisor: Denise Garner, PharmD
Dec 2010	Advanced Clerkship – Adult Medicine St. Mary’s Hospital, Evansville, IN Supervisor: Richard McDowell, RPh
Nov 2010	Advanced Clerkship – Inpatient Psychiatry Community Hospital North, Indianapolis, IN Supervisor: Cheen Lum, RPh
Sept 2010 – Oct 2010	Advanced Clerkship – Hospital Operations Methodist Hospital, Indianapolis, IN Supervisor: Emily Milewski, PharmD

July 2010 – Aug 2010 **Advanced Clerkship - Inpatient Medicine**
Moi Teaching and Referral Hospital, Eldoret, Kenya
Supervisor: Monica Miller, PharmD

May 2010 **Advanced Clerkship – Wound Care**
St. Elizabeth Hospital, West Lafayette, IN
Supervisor: Vicki Zahn, RN

Sept 2008 – Dec 2008 **Pharmacy Intern**
Walgreens Pharmacy, West Lafayette, IN
Supervisor: Stephanie Branson, RPh

UNIVERSITY AND PROFESSIONAL SERVICE

Nov 2021 – Present Advisory Committee – Psychedelic Pharmacists Association

Nov 2021 – Present Executive Committee and Education and Outreach Committee Chair –
Transdisciplinary Center in Psychoactive Substances Research

Mar 2021 – Present Admissions Committee Chair – MS in Psychoactive Pharmaceutical Investigation

Sept 2020 – Present Student Writing Club Mentor

May 2020 – Present Steering Committee Chair – MS in Psychoactive Pharmaceutical Investigation

Nov 2019 – Present Strategic Hiring Plan Task Force - PPD

Sept 2019 – Aug 2021 PPD Strategic Planning Subgroup Facilitator - INNOVATE

July 2019 – Present Veterans Administration Resident Research Committee

June 2019 Pharmaceutical Graduate Student Research Meeting Poster Session Judge

Mar 2019 – Present Dissertation Committee Member – 8 Individual Students

Nov 2018 – Present Admissions Committee – Molecular and Cellular Pharmacology Training Program

Nov 2018 SciMED GRS Poster Session Judge

Sept 2018 – May 2019 Faculty Advisor – DC Everest SMART Team Investigator

Aug 2018 – Present Curriculum Committee – UW Madison School of Pharmacy

Oct 2015 – Nov 2016 Peer Review Panelist and Interview Judge - TSRI Society of Fellows Travel Award
Committee

Sept 2014 – Mar 2015 Organizing Committee Chair – 2015 Joel G Hardman Student Invited
Pharmacology Forum: “Pharmacology in Space”

Sept 2014 – June 2015 Vice President for Community Engagement – Department of Pharmacology
Graduate Student Council

Nov 2013 – Mar 2014	Organizing Committee Member – 2014 Joel G Hardman Student Invited Pharmacology Forum: “Safety Pharmacology”
Mar 2012 – Mar 2013	Annual Review Committee – VUMC/HHMI Program in Molecular Medicine
Nov 2009 – Dec 2009	Charles B. Murphy Teaching Award Selection Committee
Dec 2008 – Dec 2010	Dean’s Focus Group – Purdue University School of Pharmacy

EDITORIAL AND PEER REVIEW ACTIVITY

Dec 2020	Ad Hoc Grant Reviewer <i>UW-ICTR, Clinical and Community Outcomes Grant</i>
June 2020	Ad Hoc Grant Review Panelist <i>Congressionally Directed Medical Research Programs, United States Army Medical Research and Materiel Command</i>
Jan 2016 – Dec 2017	Editorial Support Staff <i>Bioorganic and Medicinal Chemistry</i>
Aug 2015 – Present	Ad Hoc Manuscript Reviewer <i>ACS Chemical Neuroscience</i> <i>ACS Combinatorial Science</i> <i>ACS Medicinal Chemistry Letters</i> <i>Addiction</i> <i>Angewandte Chemie International Edition</i> <i>Biochemistry</i> <i>Bioorganic and Medicinal Chemistry</i> <i>Bioorganic and Medicinal Chemistry Letters</i> <i>Chemical Communications</i> <i>Chemistry – A European Journal</i> <i>Frontiers In Neuroergonomics</i> <i>Integrated Pharmacy Research and Practice</i> <i>Journal of the American Chemical Society</i> <i>Journal of Clinical Anesthesia and Pain Management</i> <i>Journal of Medicinal Chemistry</i> <i>Molecular Pharmaceutics</i> <i>Organic Letters</i> <i>Scientific Reports</i>

EXPERT WITNESS

Nov 2021 – Present	Wisconsin Federal Public Defender’s Office
Jan 2019 – Present	Ohio State Attorney General’s Office

LICENSURE / CERTIFICATION / TRAINING

March 2021 (Active; through May 2024)	Pharmacist License Wisconsin Pharmacy Examining Board
February 2021	APhA Pharmacy-Based Immunization Delivery Certificate

Pharmacy Society of Wisconsin

- July 2019 **Naloxone Academic Detailing Bootcamp Training**
National Resource Center for Academic Detailing, Harvard Medical School
- May 2019 **Research Mentor Training**
WISCIENCE / Delta / CIMER
- Mar 2019
(Active; through May 2023) **Schedule I License (Researcher)**
United States Drug Enforcement Administration
- Nov 2018
(Active; through May 2023) **Schedule II-V License (Researcher)**
United States Drug Enforcement Administration
- Oct 2018
(Active; through Dec 2022) **Special Use Authorization – Research**
Wisconsin Controlled Substances Board
- Oct 2018 **ACS Reviewer Lab Certificate**
American Chemical Society
- June 2014 **Certification in Molecular Medicine**
Vanderbilt University Medical Center/Howard Hughes Medical Institute
- Aug 2011
(Active; through June 2024) **Pharmacist License**
Indiana Board of Pharmacy
- July 2009 **Substance Abuse Training Certificate**
Utah School on Alcoholism and Other Drug Dependencies