

Kristen L. Woodhouse, Ph.D.

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Curriculum Vitae

EDUCATION

Ph.D. Neuroscience

2024

University at Buffalo, the State University of New York – Buffalo, NY

- Dissertation: Further characterization of α_2/α_3 -selective GABA_A receptor positive allosteric modulators as novel analgesics, defended January 9, 2024

B.S. Genetics, Cell Biology, and Development

2017

University of Minnesota – Twin Cities, MN

PUBLICATIONS (* Co-first author)

Wang B*, Feng X*, **Woodhouse K***, Sharma D, Meng X, Shang H, Hu H, Zhang Y, Li JX, Tao YX (2025). LPA5 in insulate cortex as a potential analgesic target in neuropathic pain. *Neurotherapeutics*.

Lewter L, **Woodhouse K**, Tiruveedhula VVNPB, Cook J, Li JX (2024). Antinociceptive effects of α_2/α_3 -subtype selective GABAA receptor positive allosteric modulators KRM-II-81 and NS16085 in rats: behavioral specificity. *Journal of Pharmacology and Experimental Therapeutics*.

Siemian JN, **Woodhouse K**, Liu DH, Zhang Y, Li JX (2023).

The imidazoline I2 receptor agonist 2-BFI reduces abuse-related effects of morphine: self-administration and drug discrimination. *Psychopharmacology*.

Zhang D, Decker A, **Woodhouse K**, Snyder R, Patel P, Harris D, Tao Y, Li JX, Zhang Y (2022).

Isoquinoline derivatives as lysophosphatidic acid receptor 5 (LPA5) antagonists: investigation of structure-activity relationships, ADME properties and analgesic effects. *European Journal of Medicinal Chemistry*.

Mitra S, Thomas S, Martin J, Williams J, **Woodhouse K**, Chandra R, Li JX, Sim F, Dietz D (2022).

EGR3 regulates opioid-related nociception and motivation in male rats. *Psychopharmacology*.

MANUSCRIPTS IN PREPARATION

Woodhouse KL, Li JX. Individual differences in behavioral effects of xylazine and opioid-xylazine mixtures in male rats. *bioRxiv*: <https://doi.org/10.1101/2025.06.25.661558>

Woodhouse KL*, Martin MK*, Patel PJ, McCartney MR, Kamina A. Implementation of a discussion-based course on inequities in biomedical research for incoming doctoral students.

ORAL PRESENTATIONS

“Behavioral effects of xylazine and opioid-xylazine mixtures.” Invited to speak as part of the Neuroscience Seminar Series at the University at Buffalo in November 2025.

“Antinociceptive interactions between α_2/α_3 -selective GABA_A receptor modulator KRM-II-81 and opioids in female rats.” Virtual talk at the International Graduate Student Conference in Pharmaceutical Sciences meeting hosted by Soochow University in November 2021 and at the 2022 Behavior, Biology, and Chemistry meeting in February 2022.

POSTER PRESENTATIONS

Woodhouse KL, Sharmin D, Cook JM, Li JX (2024). Differential effects of the imidazodiazepine KRM-II-81 and the benzodiazepine midazolam on opioid-induced respiratory depression in adult rats. Poster presented at the 16th Behavior, Biology, and Chemistry meeting, San Antonio, TX.

Woodhouse KL, Golani LK, Cook JM, Li JX (2022). Combination therapy with morphine and the imidazodiazepine KRM-II-81 in adult rats for pain control: lack of tolerance. Poster presented at annual meeting hosted by the Buffalo Chapter of the Society for Neuroscience in Buffalo, NY.

Woodhouse KL, Cook JM, Li JX (2022, 2021). Antinociceptive effects of α_2/α_3 -selective GABA_A receptor PAMs on opioid-induced hyperalgesia. Poster presented virtually at annual meeting hosted by the Buffalo Chapter of the Society for Neuroscience, and the 2021 Society for Neuroscience meeting. Poster presented in person at the 2022 Experimental Biology meeting in Philadelphia, PA.

Woodhouse KL, Cook JM, Li JX (2020). Evaluating combination therapies for treatment of chronic inflammatory pain: a GABA_A approach. Poster presented at the Behavior, Biology, and Chemistry meeting, San Antonio, TX.

Woodhouse KL, Chan JD, Marchant JS (2018, 2017). Psychoactive drugs as a route to development of novel anti-parasitic agents. Poster presented at the Experimental Biology meeting, Chicago, IL and the 2018 Anthelmintics III meeting, Indian Rocks Beach, FL.

RESEARCH EXPERIENCE

Postdoctoral Associate, Lab of Jun-Xu Li, MD, PhD

Feb 2024 - Aug 2025

University at Buffalo, SUNY, Department of Pharmacology and Toxicology – Buffalo, NY

- Evaluated behavioral effects of xylazine and opioid-xylazine mixtures to characterize opioid-xylazine drug interactions underlying an emerging threat to public health
 - Conducted a battery of behavioral tests to compare the pharmacological effects of fentanyl, morphine, and clonidine alone with those of fentanyl-xylazine, morphine-xylazine, and morphine-clonidine mixtures – including drug discrimination, whole body plethysmography, and body temperature
- Characterized analgesic effects of LPA5 receptor antagonists for a collaborative project
 - Performed chronic constriction injury and spinal nerve ligation surgeries in CD-1 mice then measured antinociception using von Frey filaments and a Hargreaves apparatus
 - Conducted T-maze and novel object recognition tests to assess potential cognitive effects

Graduate Research Assistant, Lab of Jun-Xu Li, MD, PhD

Apr 2019 - Jan 2024

University at Buffalo, SUNY, Department of Pharmacology and Toxicology – Buffalo, NY

- Characterized the pharmacological effects of α_2/α_3 subtype-selective GABA_A receptor positive allosteric modulators and other potential analgesics
 - Induced pain behavior in rats to model chronic pain (complete Freund's adjuvant, chronic constriction injury) and opioid-induced hyperalgesia
 - Measured mechanical and thermal antinociception using von Frey filaments and a Hargreaves apparatus
 - Conducted behavioral assessments to examine potential side effects – including schedule-controlled food-maintained operant responding, conditioned place-preference, horizontal wire test, and open field test
 - Analyzed drug interactions using both new (multi-dimensional synergy of combinations) and traditional strategies (dose-addition, isobolographic analysis), and created figures using GraphPad Prism

Rotation Student**Sept 2018 - Apr 2019**

University at Buffalo, PhD Program in Biomedical Sciences – Buffalo, NY

- Lab of Jian Feng, PhD – Department of Physiology and Biophysics
 - Generated lentiviral vectors for cellular reprogramming and tested viral titers via ELISA
 - Reprogrammed human fibroblast (MRC-5) cells into neurons using ASCL1, miR124, M2rtTA, and P53 lentiviral vectors
 - Tested for mycoplasma contamination by extracting DNA from cell cultures, performing PCR, and visualizing results via gel electrophoresis
- Lab of Gabriela Popescu, PhD – Department of Biochemistry
 - Performed cell-attached patch clamp on human embryonic kidney (HEK293) cells transfected with NMDA receptor subunits
- Lab of David Dietz, PhD – Department of Pharmacology and Toxicology
 - Cryosectioned rat brains, performed immunohistochemistry, and imaged brain slices using a confocal microscope

Research Technologist, Lab of Jonathan Marchant, MA, PhD**Sept 2017 - Aug 2018**

Medical College of Wisconsin, Department of Cell Biology, Neurobiology and Anatomy – Milwaukee, WI

- Screened serotonergic GPCRs from planaria (*D. japonica*), cestodes (*M. corti*), and schistosomes (*S. mansoni*) using GPCR small compound library
 - Transiently transfected serotonin receptors into human embryonic kidney (HEK293) cells expressing a biosensor
 - Performed luminescence assay using a Promega GloMax plate reader and plotted dose-response curves with Origin software
 - Identified compounds with high affinity for serotonin receptors in each worm species

Laboratory Assistant, Lab of Jonathan Marchant, MA, PhD**Oct 2014 - Aug 2017**

University of Minnesota, Department of Pharmacology – Minneapolis, MN

- Investigated effects of psychoactive compounds on polarity of tissue regeneration and movement using planarian flatworm (*D. japonica*) model
 - Performed trunk fragment regeneration assays under a dissecting microscope and scored tissue polarity outcomes
 - Conducted planarian movement assays and carried out video analysis in ImageJ
 - Identified compounds that potentially disrupted planarian movement

TEACHING EXPERIENCE**Teaching Assistant, Research Ethics: Recognizing Inequities in Biomedical Research 2023, 2024**

- Co-organized 6-week micro credential for incoming PhD students in collaboration with Dr. Anyango Kamina and the Office of Biomedical Education at the Jacobs School of Medicine
- Developed course materials, wrote discussion questions, and facilitated group discussions on topics such as inequities in scientific funding (e.g., sickle cell disease versus cystic fibrosis), consequences of misconceptions in pre-clinical research (e.g., social masking and underdiagnosis of females with autism spectrum disorders, undertreatment of African American and female pain patients), and interactions between science and policy (e.g., menthol cigarettes policy and role of African-specific haplotype in mentholated cigarette smoking)

Educator, Girl Scouts Go to Neuro School**2019 - 2023**

- Taught middle and high school aged members of the Girl Scouts of Western New York about neuroscience topics, including addiction, trauma, and sex as a biological variable

MENTORING

Sai Ganesh Balaji Venkata Anupindi, MS student in Li Lab

2024 - 2026

Maowei Wang, MS student in Li Lab

2023 - 2025

Evan Connolly, MS student in Li Lab

2022 - 2023

Ziyi Shang, MS student in Li Lab

2021 - 2023

AWARDS & HONORS

Travel Award, Behavior Biology and Chemistry	2020, 2022
First Prize for Oral Presentation, IGSCPS, Soochow University	2021
Allen Barnett Graduate Student Fellowship, Department of Pharmacology, UB	2019
Travel Award, American Society for Pharmacology and Experimental Therapeutics	2017

ACADEMIC SERVICE

Reviewer for <i>European Journal of Pain</i>	2025
Co-Reviewer with Dr. Jun-Xu Li for <i>ACS Pharmacology & Translational Science</i>	2023
Organizer , Careers in Science Policy Panel, UB	2022
President , Biomedical Graduate Student Government, UB	2021 - 2022
President , Neuroscience Graduate Student Association, UB	2020 - 2022
Co-Founder , Biomedical Graduate Student Government, UB	2020
Organizer , Girl Scouts Go to Neuro School, UB	2020 - 2023
Treasurer , Neuroscience Graduate Student Association, UB	2019 - 2020
Graduate Student Ambassador , PhD Program in Biomedical Sciences, UB	2019 - 2024