

Nathan T. Fried, PhD

Associate Teaching Professor
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Teaching Aim: Develop a research program and curriculum that integrates problem-based learning and authentic research experiences to increase science identity, social capital, retention, and success of students from a range of backgrounds.

Research Aim: Introduce a computational neuroethological strategy to improve behavioral measures of pain in rodents and *Drosophila* for studying the cognitive, cellular, and molecular mechanisms behind the intersection of sleep and pain.

Appointments at Rutgers University Camden

Associate Teaching Professor Continuing to integrate undergrads into my research and build research training infrastructure.	2023-
Assistant Teaching Professor Integrating teaching into my research program using <i>Drosophila</i> to study sleep and pain.	2018-2023
Assistant Director of Undergraduate Biology Research & Education Mentoring students and developing curricula that facilitate undergraduate research.	2018-
Assistant Director & Program Coordinator of the NIH T34 MARC U-STAR program Developing research training program to increase diversity in the biomedical sciences.	2019-

Education and Training

Postdoctoral Fellow , NIH K12 Penn-PORT IRACDA Fellow, University of Pennsylvania Developed new molecular, behavioral, and machine learning platform to assess pain in mice. <u>Mentor:</u> Wenqin Luo, Associate Professor	2015-2018
Ph.D. in Neuroscience , NIH T32 Fellow, Thomas Jefferson University Identified mitochondrial dysfunction & altered adenosine signaling in rat model of migraine. <u>Mentors:</u> Michael Oshinsky (NIH Program Director), Melanie Elliott (Assistant Professor)	2010-2015
B.S. in Biological Sciences (minor in mathematics), Drexel University Honors College Identified involvement of HDACs in APP metabolism in Alzheimer's cell culture model. <u>Mentor:</u> Aleister Saunders (Professor, Senior Vice Provost for Research)	2003-2008

Specialized Education and Training

CIMER's "Mentee Curricula and Training: Entering Research"	2024
Rutgers-Camden Office of the Provost Faculty Leadership Program	2023-2024
Genomics Education Partnership (GEP) to integrate genomics research into classroom	2023
Rutgers Camden Lifelong Learning in Inclusive & Equitable Teaching Program	2021
Center for the Improvement of Mentored Experiences in Research: Entering Mentoring Training	2020

R25 NIH BRAIN Initiative in Computational Neuroscience Summer Course for undergraduate research/teaching, “Models and Neurobiology”, University of Missouri	2019
Problem-Based Learning for Undergraduate Science Education, University of Delaware	2019
CrawFly neurophys course for invertebrate undergraduate research/teaching, Cornell University	2018
Improving STEM Education through Research, Drexel University	2018
Overcoming barriers to utilize Drosophila at PUIs, Drosophila Research Conference	2018
College and University Teaching (3cr course), University of Pennsylvania	2017
HHMI-BioInteractive Teaching Workshop, University of Pennsylvania	2016

Research Funding († indicates mentored undergraduate student)

RETHINK Priorities (\$7,500) (Role: Co-PI) Co-PIs: Meghan Barrett, PhD and Edward Waddell, PhD “Developing black soldier fly larvae (BSFL) as a viable pain research system.”	2022-2023
ASCB PALM-FRONS Fellowship (\$2,000) (Role: Mentor) Mentee: Kadine Powell† “Exploring the Impact of Science Identity on Self-Advocacy in the STEM classroom.”	2021
Rutgers Population Health Faculty Professional Development Grant (\$2,000) (Role: co-PI) Co-PI: Jamie Dunaev, PhD “Exploring the social context of stigma on chronic pain catastrophizing.”	2019-2020
Rutgers Experiential Learning Infusion Grant (\$2,000) (Role: PI) “Bite-Sized Authentic Research Experiences in Drosophila Sleep & Pain”	2019
Rutgers Provost Fund for Research Catalyst Grant (\$4,965) (Role: PI) “Characterizing pain in Drosophila to identify novel non-opioid pain therapeutic targets.”	2018-2019
NIH IRACDA K12 PENN-PORT Postdoc Fellow (K12 GM081259)(\$190,488) (Role: trainee) PI: Janis Burkhardt, PhD “Exploring central/peripheral neural circuit modifications in chronic pain.”	2016-2018
Thomas Jefferson Headache Center Miles for Migraine Grant (\$15,000) (Role: co-PI) Co-PIs: Wenqin Luo, PhD; Melanie Elliott, PhD “Investigating the role of non-peptidergic C-fiber nociceptors in post-traumatic headache.”	2015-2016
NIH Junior Investigators in Alcohol Research Fellow (T32 AA007463) (\$105,300) (Role: trainee) PI: Jan Hoek, PhD “Studying mitochondrial dysfunction & adenosine signaling in the hangover headache.”	2012-2015

Teaching Funding

Rutgers Equity & Inclusion Mutual Mentoring Team Grant (\$5,995) (Role: Co-PI) Co-PIs: Paulson T, Oberle J, Moran K, DuBose T, Dunaev J “Rutgers Camden NTT Mutual Mentoring Network”	2023-2024
The Chancellor's Grant for Pedagogical Innovation (\$10,000) (Role: Co-PI) Co-PI: Lee K “Entering Research: A professional development course designed to help students successfully navigate research experience at Rutgers-Camden”	2023-2024

Rutgers Camden Driving Change Initiative Project Grant (\$500) (Role: PI) “Rutgers Camden STEM DEIJ Watch Party Series.”	2022-2023
Rutgers Open and Affordable Textbooks Award (\$1,000) (Role: co-PI) Co-PI: Dr. Steven Foltz “Reimagining Statistics in Biology (SBR) with Open and Affordable Materials.”	2022-2023
ASCB Promoting Active Learning and Mentoring Fellowship (\$1,500) (Role: Mentor) Mentee: Dr. Steven Foltz “Developing statistics/research methods active learning workshops with backwards design.”	2021
ASCB Promoting Active Learning and Mentoring Fellowship (\$1,500) (Role: Mentor) Mentee: Dr. Edward Waddell “Developing a CURE-based lecture focused on chronic pain and the opioid epidemic.”	2020
Rutgers Open and Affordable Textbooks Award (\$1,000) (Role: PI) “Increasing access with problem-based learning & online materials in Neuroscience I.”	2019-2020
Digital Teaching Fellowship (\$1,500) (Role: PI) “Integrating technology into the biology classroom.”	2018-2019

Unfunded Large-Scale Grants Conceived, Written, and Submitted

“Camden STEM Research Education Center - Design and Development Launch Pilot Proposal” (\$585,000 Role: co-PI NSF INCLUDES)	2022
“A hybrid cross-institutional bridge program to foster success, science identity, community, and STEM readiness for non-traditional students in biology.” (\$450,000 Role: PI NSF RCN-UBE)	2021
“YES-CARES: Cultural Access to Cancer & Pain Research Experiences for Underserved Students.” (\$2 million Role: co-PI NIH NCI YES)	2021

Honors and Awards

HHMI Driving Change Grant (\$2.5 million) Co-writer & member of Executive Committee – PI: Kwangwon Lee	2023-2028
Presidential Rutgers University Spirit Team Award (one of 20 in HHMI Driving Change Team)	2023
Chancellor’s Award for Teaching Excellence	2023
Chancellor’s Award for Student Success (\$1,500)	2023
HHMI Driving Change Infusion Grant (\$50,000) Co-writer & member of Core Leadership Team – PI: Kwangwon Lee	2020
Rutgers Camden Biology Dept “Featured Faculty” – student nominated	2020
Edmund Optics Educational Award Finalist (\$500)	2019
R25 NIH BRAIN Initiative Comp. Neuro. Undergrad Teaching/Research Scholarship (\$1500)	2019
Drexel University’s 40 under 40	2019
IRACDA Annual Conference Research Poster Award	2018
Cornell CrawlFly Invertebrate Neurophysiology Scholarship (\$1500)	2018
Jefferson JCBS Alumni Thesis Award	2016
North American Pain School Trainee (\$1500)	2016
North American Pain School Pain Research Forum Correspondent	2016
New Headache Investigator Research Tournament Winner	2015
International Headache Academy Young Investigator	2015
NIH Pain Consortium Symposium Travel Grant (\$1000)	2014

CLS Capitol Hill Day Travel Grant (\$1000)	2014
Fredric Rieders Renaissance Foundation Graduate Student Award	2014
TJU Travel Grant (\$1000)	2012, 2014
American Headache Society Travel Grant (\$1500)	2013
Seahorse Bioscience Inc Travel Grant (\$1000)	2012
Leopold Schepp Foundation Graduate Grant (\$20,000)	2010-2012

Original: Peer Reviewed Articles († indicates mentored undergraduate student. ‡ indicates mentored postdoc.)

1. Tong RL, Khan UN, Grafe L, Hitti FL, **Fried NT**, and Corbett BF. "Stress Circuitry: Mechanisms behind Nervous and Immune System Communication that Influence Behavior." *Frontiers in Psychiatry*, 2023; v14.
2. Toussaint A, Foster W, Jones JM, Kaufmann S, Wachira M[†], Hughes R[†], Bongiovanni AR, Famularo ST, Dunham BP, Schwark R, **Fried NT**, Wimmer M, Abdus-Saboor I. "Chronic paternal morphine exposure increases sensitivity to morphine-derived antinociception." *Science Advances*, 2022; v8, Issue 7.
3. Waddell EA[‡], Ruiz-Whalen D, O'Reilly AM, **Fried NT**. "Flying in the Face of Adversity: A Drosophila-based Virtual CURE Provides Semester-long Authentic Research Opportunity to the Flipped Classroom." *Journal of Microbiology & Biology Education*, 2021, e00173-21.
4. **Fried NT**, Maxwell CR, Hoek JB, Elliott, MB, Oshinsky ML. "Adenosine modulates extracellular glutamate levels via adenosine A_{2A} receptors in the delayed-ethanol induced headache." *BioRxiv* [Preprint]. Oct 04, 2020. Available from: <https://doi.org/10.1101/2020.10.02.324517>.
5. Burdge J, **Fried NT**, Abdus-Saboor I. "Using High-Speed Videography to Construct a Mouse Pain Scale." *STAR Protocols* 2, 100322 (2021).
6. **Fried NT**, Chamessian A, Zylka M, Abdus-Saboor I. "Improving pain assessment in mice and rats with advanced videography and computational approaches." *Pain*, 2020 161, 1420–1424.
7. Abdus-Saboor I*, **Fried NT***, Lay M, Burdge J, Swanson K, Fischer R, Jones J, Dong P, Cai W, Guo X, Tao YX, Bethea J, Ma M, Dong X, Ding L, Luo W." Development of a Mouse Pain Scale Using Sub-second Behavioral Mapping and Statistical Modeling." *Cell Reports*, 2019; 28 (6): 1623 DOI: 10.1016/j.celrep.2019.07.017 (*co-first authors)
8. **Fried NT**, Elliot MB, Oshinsky ML. "The Role of Adenosine Signaling in Headache: a Review." *Brain Sci. The Pathogenesis and Treatment of Headache Disorders special issue* 2017, 7(3), 30.
9. **Fried NT**, Maxwell CR, Elliot MB, Oshinsky ML. "Region-specific disruption of the blood-brain barrier following repeated inflammatory dural stimulation in a rat model of chronic trigeminal allodynia." *Cephalalgia* April 2017.
10. **Fried NT**, Moffat C, Seifert EL, Oshinsky ML. "Functional Mitochondrial Analysis in Acute Brain Sections from Adult Rats Reveals Mitochondrial Dysfunction in a Rat Model of Migraine." *Am J Physiol Cell Physiol* 2014, 307(11):C1017-30.
11. Talati PG, Hoang DT, **Fried NT**, Magee MS, Fineberg JD. "A Perspective on PhD Career Outlook: Training, Mentoring and Utilizing a New Generation of STEM Doctoral Degrees." *Technology Transfer and Entrepreneurship* 2014, 1(2):138-143.
12. Hirata H, **Fried NT**, Oshinsky ML. "Quantitative characterization reveals three types of dry-sensitive corneal afferents: pattern of discharge, receptive field, thermal and chemical sensitivity." *Journal of Neurophysiology* 2012, 108(9):2481-93.

Original: Non-Peer Reviewed Articles

1. **Fried NT**. "A basic science perspective on pain research and the opioid epidemic." *Expert Point of View, Neurodiem International* 2020.

Original: Internal Reports

1. Heidelberg A, **Fried NT**, Blackford Humes H. “Increasing Belonging and Academic Identity in an MSI, HSI, First-Generation, Commuter campus with the Development of a Multi-tiered Learning Community (LC).” Proposal for Learning Communities at Rutgers Camden for Chancellor’s Strategic Mission 2023.

Invention Disclosures

1. **A mouse pain scale: method, software, and device**, co-inventor (filed in June 2018 to the University of Pennsylvania Center for Innovation)

Poster Presentations († indicates mentored undergraduate student. ‡ indicates mentored postdoc.)

1. Hardy E[†], **Fried NT**. “Investigating the Role of Aspartame on Chronic Pain and Caspase Proliferation.” Dec 2023 Rutgers Biology Day, Camden NJ.
2. Kobsar K[†], **Fried NT**. “Slow motion videography and computational neuroethology reveal the kinematics of tactile stimulation in Drosophila.” Dec 2023 Rutgers Biology Day, Camden NJ.
3. Lugo K[†], **Fried NT**. “Herichium Erinaceus Improves Memory and Learning in Drosophila Melanogaster.” Nov 2023 ABRCMS, Phoenix AZ.
4. Dressler C, Dunham B, Jiwanj M, Parikh VV, **Fried NT**, Abdus-Saboor I, Wimmer M. “Using a novel pain scale to assess morphine-derived antinociception in young and aged rats.” Nov 2023 Society for Neuroscience, Washington DC.
5. Wilson A[†], Wood A, **Fried NT**. “Developing an adult Drosophila melanogaster pain scale with computational neuroethology techniques.” May 2023 Rutgers Biology Day, Camden NJ.
6. Hardy W[†], **Fried NT**. “Pilot Study Explores Dietary Monosodium Glutamates Effect on Nociception in Drosophila melanogaster.” Dec 2023 Rutgers Biology Day, Camden NJ.
7. Crespo J[†], **Fried NT**. “Exploring the relationship between Sleep & Pain with the Sleep Inbred Panel line of Drosophila Melanogaster.” May 2023 Rutgers Biology Day, Camden NJ.
8. Baudini I[†], **Fried NT**. “Characterizing Thermal Nociception Behavior in Drosophila Larva To Study The Impact of Sleep Disruption on Pain.” May 2023 Rutgers Biology Day, Camden NJ.
9. Lam S[†], **Fried NT**. “Pilot study on pain sensing using thermal assay on adult Drosophila melanogaster.” May 2023 Rutgers Biology Day, Camden NJ.
10. Baduini I[†], **Fried NT**. “Characterizing Thermal Nociception Behavior in Drosophila Larva To Study The Impact of Sleep Disruption on Pain.” Dec 2022 Rutgers Biology Day, Camden NJ.
11. Arroyo-Martinez R[†], **Fried NT**. “Adopting a New Assay to Test Mechanical Pain in Drosophila.” Dec 2022 Rutgers Biology Day, Camden NJ.
12. Hardy E[†], Crespo J[†], **Fried NT**. “Exploring Dietary Monosodium Glutamates Effect on Nociception in Drosophila melanogaster.” Dec 2022 Rutgers Biology Day, Camden NJ.
13. Lam S[†], Crespo J[†], **Fried NT**. “Establishing a Protocol for Measuring Thermal Nociception in Adult Drosophila melanogaster.” Dec 2022 Rutgers Biology Day, Camden NJ.
14. Hardy E[†], Crespo J[†], **Fried NT**. “Exploring Dietary Monosodium Glutamates Effect on Nociception in Drosophila melanogaster.” Nov 2022 ABRCMS, Anaheim CA.
15. Lam S[†], Crespo J[†], **Fried NT**. “Establishing a Protocol for Measuring Thermal Nociception in Adult Drosophila melanogaster.” Nov 2022 ABRCMS, Anaheim CA.
16. Dressler C, Jiwanji M, Foster W, Dunham B, **Fried NT**, Abdus-Saboor I, Wimmer M. “Measuring pain in a chronic inflammatory rat model using a novel high speed videography-based pain scale.” Nov 2022 Society for Neuroscience, San Diego, CA.
17. Powell K[†], **Fried NT**. Exploring the Impact of Science Identity on Self-Advocacy in the STEM Classroom.” April 2022 CURCA, Camden, NJ.
18. Mody K[†], Woods K[†], **Fried NT**. “Development of a Protocol for Using the RGS at a Sub-Second Timescale.” May 2022 Rutgers Biology Day, Camden NJ.
19. Crespo J[†], **Fried NT**. “Pilot Study Reveals Reduced Sleep Increases Sensitivity to Chemical Nociception in Drosophila melanogaster.” Nov 2021 ABRCMS.

20. Suoto C[†], **Fried NT**. “Characterizing Seizure Susceptibility in a *Drosophila melanogaster* Model of Familial Hemiplegic Migraine.” Dec 2021 Rutgers Biology Day, Camden NJ.
21. Mody K[†], Woods K[†], **Fried NT**. “Modifying the Rat Grimace Scale for the Sub-Second Assessment of Acute Pain.” Dec 2021 Rutgers Biology Day, Camden NJ.
22. [‡]Waddell EA, **Fried NT**. “Flying in the Face of Adversity: A *Drosophila*-based Virtual CURE Provides Semester-long Authentic Research Opportunity to the Flipped Classroom.” June 2021 NIH IRACDA Annual Conference.
23. Khan S[†], **Fried NT**. “Investigating the Role of Sleep on Acute and Chronic Pain Responses in *Drosophila melanogaster*.” June 2021 Rutgers Biology Day, Camden NJ.
24. Woods K[†], Delva G[†], D’Angelo S[†], Ruiz B[†], **Fried NT**. “The development of a high-speed rat pain ethogram.” December 2020 Rutgers Biology Day, Camden NJ.
25. Delva G[†], **Fried NT**. “Echinacea—A Potential Supplement to Treat Pain in Women with HPV-induced Cervical Cancer.” December 2020 Rutgers Biology Day, Camden NJ.
26. D’Angelo S[†], **Fried NT**. “Meta-Analysis of Preclinical Rodent Chronic Pain Studies: A Systematic Study Identifying Trends and Inconsistencies of Language, Methodology, Biases, and Models Utilized within the Field.” November 2020 Annual Biomedical Research Conference for Minority Students (ABRCMS).
27. Ruiz B[†], Alexander J, Dyson E, Ruiz-Whalen D, **Fried NT**, O’Reilly A. “Apoptosis in Ovarian Cells of RasMutant *Drosophila melanogaster*.” November 2020 Annual Biomedical Research Conference for Minority Students (ABRCMS).
28. Hughes B[†], Khasawneh O[†], Mehta H[†], **Fried NT**. “A High Fat Diet Increases Sensitivity to Chemical Nociception in *D. melanogaster*.” November 2020 Annual Biomedical Research Conference for Minority Students (ABRCMS).
29. Gohar T[†], Arman H[†], Joy K[†], Sohail R[†], Rizvi Z[†], **Fried NT**, Lee K. “Fish Oil Diet Supplementation Improves Learning and Memory in *Drosophila melanogaster*.” November 2020 Annual Biomedical Research Conference for Minority Students (ABRCMS). **Gohar T won best neuro poster award.*
30. Pan J[†], Khan U[†], Wachira M[†], Hughes R[†], Khan S[†], **Fried NT**. “Using artificial intelligence high speed imaging to study the effects of sleep disturbance on nociception in *Drosophila melanogaster*.” December 2019 Rutgers Biology Day, Camden NJ.
31. Khan S[†], Pan J[†], Wachira M[†], Hughes B[†], Khan U[†], **Fried NT**. “Modeling the effects of sleep disruption on pain in *Drosophila melanogaster*.” November 2019 Annual Biomedical Research Conference for Minority Students (ABRCMS), Anaheim CA.
32. **Fried NT**. “Exploring the effectiveness of removing textbooks from a 300-Level Neuroscience I course at a Primarily Undergraduate Institution (PUI) with a high percentage of First-Generation Low-Income (FGLI) students in an effort to decrease course-associated costs.” October 2019 Society for Neuroscience Annual Meeting, Chicago, IL.
33. **Fried NT**, Abdus-Saboor I, Dong P, Burdge J, Lu M, Ding L, Luo W. “A Mouse Pain Scale: Assessment of Pain Sensation in Mice Using Sub-second Behavioral Mapping and Statistical Modeling.” July 2018 NIH IRACDA Annual Conference, Atlanta, GA. *Received Poster Award
34. Abdus-Saboor I, **Fried NT**, Dong P, Burdge J, Lu M, Ding L, Luo W. “High resolution mapping of sub-second behavior features of mouse paw withdrawal.” November 2017 Society for Neuroscience Annual Meeting, Washington DC.
35. Green A[†], **Fried NT**, Luo W. “Using optogenetics to investigate the interactions between fibroblasts and c-fibers in the development of chronic pain.” November 2017 Annual Biomedical Research Conference for Minority Students (ABRCMS), Phoenix AZ.
36. Perino J, **Fried NT**, Oshinsky ML, Daugherty B, Lederman S, Elliott MB. “The (R)-isomer of isometheptene decreases trigeminal sensitivity in a rat model of primary headache.” June 2016 American Headache Society Annual Scientific Meeting, San Diego, CA.
37. Hann S, **Fried NT**, Venkatesan L, Oshinsky ML. “Effectiveness of 'Burst' Occipital Nerve Stimulation in Treating Allodynia in a Rodent Model of Migraine.” December 2015 The North American Neuromodulation Society Annual Meeting, Las Vegas, NV.
38. **Fried NT**, Oshinsky ML. “The role of adenosine signaling, mitochondrial dysfunction, and glutamate signaling in delayed-ethanol-induced-headache in two rat models of migraine.” June 2015 38th annual Research Society on Alcoholism Scientific Meeting, San Antonio, TX.

39. **Fried NT**, Oshinsky ML. “The (R)-isomer of isometheptene, decreases trigeminal sensitivity in a rat model of primary headache.” June 2015 AHS Annual Scientific Meeting, Washington, DC.
40. **Fried NT**, Oshinsky ML. “Mitochondrial Dysfunction in the Development of Trigeminal Sensitivity in a Chronic Migraine and Spontaneous Trigeminal Allodynia Rat Model.” May 2015 International Headache Congress, Valencia, Spain.
41. **Fried NT**, Oshinsky ML. “Repeated infusion of prostaglandin E2 onto the dura induces chronic trigeminal sensitivity via TRPA1 channels.” June 2014 American Headache Society Scientific Meeting, Los Angeles, CA. | November 2014, Society for Neuroscience Meeting, Washington DC.
42. **Fried NT**, Oshinsky ML. “The Role of Mitochondrial Dysfunction in the Development of Chronic Migraine.” May 2014, The 9th Annual NIH Pain Consortium Symposium on Advances in Pain Research, Bethesda, MD. (*INVITED POSTER PRESENTER*)
43. **Fried NT**, Oshinsky ML. “The role of adenosine and mitochondrial dysfunction in delayed-ethanol-induced-headache.” June 2014, 37th Research Society on Alcoholism Scientific Meeting, Bellevue, WA.
44. **Fried NT**, Moffat C, Seifert EL, Oshinsky ML. “Reduced Spare Respiratory Capacity in a Rat Model of Migraine.” June 2013 International Headache Congress, Boston, MA.
45. Hirata H, **Fried NT**, Oshinsky ML. "Short exposure to intense tear hyperosmolarity leads to functional alterations of the corneal nerves involved in tearing and/or ocular pain." March 2013 The Association for Research in Vision and Ophthalmology Annual Meeting Seattle, WA
46. **Fried NT**, Moffat C, Seifert EL, Oshinsky ML. “Mitochondrial dysfunction in a rat model of chronic migraine.” October 2012 Society for Neuroscience Annual Meeting, New Orleans, LA (*Endorsed by Seahorse Bioscience and reprinted for publication and in a press release.*)
47. Khandelwal P, Schuster J, **Fried NT**, D'Cruz T, Lee J, Saunders A. "Identification Of Regulators Of APP Metabolism On Chr 10" July 2008 International Conference on Alzheimer's Disease, Chicago, IL
48. **Fried NT**, Khandelwal P, Saunders A. "Identification of HDACs involved in APP metabolism" March 2008 Drexel's CoAS Research Day, Philadelphia, PA; April 2008 (Drexel Research Day – 1st prize)
49. Reddy M, Wong J, **Fried NT**, Prabhakar U. "Human IL-12/23 mAb inhibits Cutaneous Lymphocyte Antigen, IL-12R, and IL-2Ra expression on activated peripheral blood T lymphocytes and secretion of IFN- γ , IL-17, IL-2, IL-10, and TNF- α cytokines" April 2006, Society for Investigative Dermatology, Philadelphia, PA; July 2006, Centocor Science Poster Day, Radnor, PA

Invited Research-focused Talks

Dept. of Psychological and Brain Sciences, Villanova University	
“Rethinking Behavior in Neuroscience from an Ethological Perspective.”	2024
Dept. of Biology’s Seminar Series, Drexel University	
“Computational Neuroethology with Invertebrates.”	2023
Biological & Biomed Seminar Series, Rowan University	
“Computational Neuroethology to unveil Mechanisms behind Chronic Pain.”	2022
Dept of Biology Seminar Series, Rutgers Camden	
“A computational neuroethology approach provides mechanistic insight into chronic pain.”	2022
Dept. Psychology’s Seminar Series, Rutgers Camden	
“The Misinterpretations of Animal Behavior may be the Greatest Barrier for Neuroscience.”	2021
Dept. of Natural Sciences Seminar Series, Coppin State University	
“From Paw Withdrawal to Paw Pain Scale.”	2021
Dept. Psychology’s Seminar Series, William’s College	
“Introducing Computational Neuroethology to Pain Research.”	2021
Rowan School of Medicine Seminar Series, Rowan University	
“High-speed imaging of drosophila and rodent nociception behavior.”	2020
Dept. of Biology’s Seminar Series, Drexel University	
“Moving from rodents to flies to study pain.”	2020
Neuroscience Seminar, Medical College of Wisconsin	
“Integrating undergraduates into the study of chronic pain.”	2019
Center for Computational and Integrative Biology Annual Conference, Rutgers Camden	

“Computational Approaches to Studying Pain in Rodents.”	2019
Dept. of Psychology’s Cognition and Neuroscience Seminar Series, Temple University	
“Enhancing vertebrate & invertebrate models of pain.”	2019
NIH IRACDA Annual Teaching & Research Conference, Ann Arbor	
“Barriers to Research for First-Generation Low-income Commuter Students.”	2019
Thomas Jefferson University Headache Clinicians Meeting, TJU	
“Rats, Mice, and Flies: Vertebrates & Invertebrates in Pain Research.”	2019
Center for Computational and Integrative Biology, Rutgers Camden	
“Creating Bite-Sized Authentic Research Experiences in Pain.”	2019
Dept. of Biology’s Seminar Series, Drexel University	
“Refining our Measurement of Pain in Mice.”	2019
Chancellor’s New Faculty Research Symposium, Rutgers Camden	
“Bringing Pain Research to Undergraduates.”	2018
Coriell Institute Seminar Series, Coriell	
“Increasing the predictive validity of pre-clinical animal pain models.”	2018
NIH IRACDA Annual Teaching & Research Conference, Emory	
“How do you Know a Mouse is in Pain?”	2018
Thomas Jefferson University Headache Clinicians Meeting, TJU	
“CGRP and high-speed imaging of rodent headaches “	2018
Postdoctoral Research Highlights Seminar, Drexel University	
“High-speed imaging of mouse pain behavior “	2018
Tonix Pharmaceuticals Key Opinion Leader Meeting	
“Isometheptene isomer effects on rat model of primary headache.”	2015
American Headache Society Annual Meeting	
“Isometheptene: It works, but for the wrong reason.”	2015
University of Texas at Austin Seminar, UofT	
“Unraveling basic migraine physiology by defining how alcohol affects trigeminal pain.”	2015

Invited Education-focused Talks

Rutgers Mutual Mentoring Grant Symposium, New Brunswick, NJ	
“Building community between non-tenure track faculty improves student outcomes.”	2024
Biophysical Society Annual Meeting, Philadelphia, PA	
“Embracing a hybrid research environment to increase science identity post-COVID.”	2024
Rutgers Camden virtual Biology Day	
“Finding, Applying, and Landing Paid Summer Research Internships in STEM.”	2023
Educational Equity & Excellence Collaborative’s Rutgers Summit on Student Success	
“Practical barriers for low-income students pursuing a career in STEM.”	2023
Rutgers Camden CCAS Lunch and Learn Series	
“Teaching Science Writing in the Age of Artificial Intelligence.”	2023
University of Delaware Project Brain Light	
“Harnessing social media for science outreach.”	2023
Northeast Regional NIH Institutional Development Award (IDeA) Conference	
“Advancing your Academic Career by Practicing Science Communication with Social Media.”	2023
Center for Computational and Integrative Biology Annual Conference, Rutgers Camden	
“Improving the Undergraduate-Graduate Student Research Relationship.”	2022
Thomas Jefferson DEIJ Seminar Series, Rutgers Camden	
“Institutional strategies to overcome obstacles of first-gen low-incomes students in research.”	2021
Center for Computational and Integrative Biology Annual Conference, Rutgers Camden	
“Using Science Communication Tools to excel in an Academic Career.”	2020
National Institute on Aging, National Institutes of Health	
“Pursuing a Research Career with a Focus on Undergraduate Trainees.”	2020
University of Pennsylvania’s IRACDA Program	

“Development of a postdoc-undergrad mentorship program: bridging MARC & IRACDA” University of Pennsylvania’s Summer Internship Program Virtual Session	2020
“How to be professional in a scientific setting” Society for Scholarly Publishing Conference, Wistar Institute	2020
“Harnessing the ‘ah-ha’ moment in teaching and research.” Leveraging Data for Population Health: Academic Partnerships Symposium, Rutgers Camden	2019
“Using Social Media to Bridge Academia and Community.” Problem-Based Learning Symposium, Rutgers Camden	2019
“Infusing Problem-Based Learning into a Biology Curriculum.” PYPELINES Research & Education Conference, Fox Chase Cancer Institute	2019
“Promoting Experiential Learning and Diversity w/ a Research Program in Pain.” SACNAS Annual Meeting, San Antonio	2019
“Being a First-Generation Low-Income Faculty Member.” NIH IRACDA Annual Teaching & Research Conference, Emory	2018
“Obstacles for First-Generation Low-Income Students in STEM.” Communicating Your Science Conference, Drexel University	2018
“Sharing your science on social media “	2017

Research Experience

NIH Penn-PORT IRACDA Postdoctoral Fellow, Dept. of Neuroscience, Univ. of Pennsylvania Utilized mouse genetics, optogenetics, and behavior to study neural circuits of pain.	2015-2018
PhD Candidate, Dept. of Neuroscience, Thomas Jefferson University Studied mitochondrial dysfunction and adenosine signaling in rat model of migraine.	2010-2015
Research Lab Manager, Dept. of Biology, Drexel University Managed cell imaging, flow cytometry, and RNAi resource centers.	2008-2010
Student Research Assistant, Dept. of Biology, Drexel University Performed a chromosome-wide screen for genes affecting Alzheimer’s disease.	2005-2008
Co-op/Assistant Scientist, Centocor Used cell-based assays to study efficacy of multiple sclerosis therapeutics.	2005-2007

Teaching Experience

Associate Teaching Professor, Dept. of Biology, Rutgers University Camden	2023-
Assistant Teaching Professor, Dept. of Biology, Rutgers University Camden	2018-2023
Adjunct Professor, Dept. of Biology, Rutgers University Camden	2018
Adjunct Professor, Dept. of Biology, Delaware County Community College	2017
Physics Teaching Assistant, Thomas Jefferson University	2013-2018

Courses Developed & Taught

Computers in Biology (100-level for non-majors)	2024-
Molecular Biology (300-level & graduate)	2023-
Molecular Biology Lab (300-level & graduate)	2023-
Communicating Biological Science (300-level & graduate)	2020-
Neuroscience I (300-level & graduate)	2019-2023
Honors Neuroscience of the Opioid Epidemic (100-level)	2020
Neurobiology II (300-level & graduate)	2020
Neurobiology of Behavior (300-level)	2019
Neuroscience of the Opioid Epidemic (300-level & graduate)	2018-2019

Courses Adopted & Taught

Principles and Practices of Biological Research CURE lecture (300-level)	2024-
Principles and Practices of Biological Research CURE lab (300-level)	2019-
Statistics in Biological Science (200-level)	2019-
Essentials of Anatomy & Physiology I Lab (100-level for nursing students)	2023
Facts of Life (100-level Biology for non-majors)	2023
Current Topics (400-level)	2020
Exploring Careers in Biology (100-level)	2018-2020
Pathophysiology (300-level)	2018
Anatomy and Physiology I (200-level)	2017

Special Curricula

MARC Professional Development for Undergraduate Research Summer Research Series	2019-2023
Drosophila Lab in a Box Undergraduate Research Bridge Program	2022

Guest Lectures

“What can I be with a PhD?” – Kwangwon Lee’s Exploring Careers in Biology	2023
“Applying to PhD programs.” – Kwangwon Lee’s Exploring Careers in Biology	2022
“Behavior as a Proxy for Neuronal Function.” – Amy Savage’s Animal Behavior	2022
“Navigating a Research career.” – Kwangwon Lee’s Exploring Careers in Biology	2021

Science Writing Experience

Freelance Science Journalist, International Association for the Study of Pain (IASP)	2016-2018
Freelance Science Copy Editor, Cactus Communications	2016-2017
Freelance Science Writer, American Association for Cancer Research	2014-2015
Columnist, Integrative Academic Solutions	2013-2014
Content Editor, National Institute of Neurological Disorders and Stroke	2011-2012

Service

Activities

STEM Olympiads Faculty Advisor	2023-
Teaching Mentor for NIH IRACDA postdoc fellow	2020-
Biology Departmental Seminar Organizer	2020
Assistant Editor for the Rutgers Camden Journal of Biological Science	2019-
Ad hoc academic reviewer at ACS Pharmacology & Translational Science, PLOS ONE, Cell Reports, Cell STAR Protocols, Cephalalgia, Journal of the Neurological Sciences, Cellular Physiology and Biochemistry, Experimental Brain Research, and Neurotrauma Reports.	2016-
Tutored mathematics, physics, neuroscience, biology, and genetics	2008-2016
Mapped primate populations w/ Bioko Biodiversity Protection Program, Equatorial Guinea	2010
Mapped sea turtle populations w/ Archelon: Sea Turtle Protection Society of Greece, Greece	2008
Mapped lanternfish populations w/ SEA sailing research vessel, Sargasso Sea	2008

Science & Education Public Outreach

Invited speaker at Honors College, “A Just Community in Pain/Addiction Research”.	2022
Invited speaker for eCLOSE Virtual Research Program, “Navigating Research.”	2022
Invited panelist for Rutgers Camden Honors College “Failure Series”	2021
Invited speaker for Scarlet Scholars Lecture Series	2021
Invited speaker at Omicron Delta Kappa Rutgers-Camden	2021
Invited speaker for eCLOSE Virtual Research Program, “Pain and Addiction.”	2021

Invited panelist at Rutgers Student Success Coach Office	2020
Invited speaker at Rutgers Camden Psychology Club	2020
Invited speaker at Philadelphia Science Center Venture Café	2020
Rutgers Camden Ethics Bowl Judge	2020
Invited speaker for eCLOSE Virtual Research Program, “Developing Research Questions.”	2020
Invited speaker at Washington Township High School	2020
Rutgers Camden Biology Club Poster Primer Day	2019
Rutgers Camden Biology Club Neuroscience Seminar	2019
Rutgers Neuroscience Table at Philadelphia Science Festival Carnival & La Colombe	2019
Invited curator of the @RealScientists Twitter outreach account w/ 78K followers	2018
Invited speaker at Cafe Scientifique in Woking, United Kingdom at the LightBox art gallery	2018
Invited monologist at “Without Order” performance	2018
Invited speaker at Taste of Science Festival	2018
Invited speaker at University of Pennsylvania’s Biological Basis of Behavior Society	2018
Invited speaker at TimeCamp001 science fiction conference hosted by Afrofuturist Affair	2017
Invited speaker at Washington Township High School	2017
Invited speaker at Philadelphia Science Festival’s Sensory Overload at Yard’s Brewery	2017
Philadelphia Brain Health Fair	2014
Coalition for the Life Sciences Capitol Hill Day	2014
SFN Brain Week activities	2011-2014

DEIJ Outreach

Invited speaker at UPenn’s SUIP, “Creating an Inclusive Lab Culture”	2023
Poster judge for the Annual Biomedical Research Conference for Minority Scientists	2023
Invited speaker at UPenn’s SUIP, “Being a good lab citizen”	2022
Poster judge for the Annual Biomedical Research Conference for Minority Scientists	2021
Invited speaker at Rutgers Camden EOF, “Connecting with Research Faculty”	2021
Host for “How to Write a Diversity Statement” Workshop, Rutgers Camden	2020
Invited speaker at UPenn’s SUIP, “Being a good lab citizen”	2020
Poster judge for the Annual Biomedical Research Conference for Minority Scientists	2019
Invited speaker at Design Thinking Academy Charter School	2019
High School Writers Conference Guest Speaker	2019
Poster judge for Penn’s Office of Research & Diversity Training Symposium	2018
Invited speaker at Lincoln University (HBCU)	2016
Poster judge for Penn Honors Diversity Symposium	2016

Committee Work

Biology DEI Committee (chair)	2022-
Biology Teaching Evaluation Committee (chair)	2021-
Biology Course Scheduling Committee	2021-
Biology Teaching Load Committee	2021-
RUC Assessment Council on Learning Outcomes	2022-
RUC 4+4 PharmD Articulation Agreement with University of the Sciences	2020
RUC Provost Search Committee	2022
RUC Chancellor Search Committee	2021
HHMI Driving Change Executive Committee	2020-
RUC CCAS Senator at large	2020-
RUC Undergraduate Research Committee	2020-2022
RUC Working Group	2019-2021
RUC DEI Committee	2021
RUC Paul Robeson Library Undergraduate Research Award Committee	2021

Leadership Positions in Scientific Organizations

Co-Director/Co-Founder of the Rutgers Science Building High School Internship	2019-
Web developer for the Philadelphia Chapter of SFN	2011-
Standing member on the Publications committee in the Research Society on Alcoholism	2013-2015
Founding member of the Thomas Jefferson University Business and Biotech Group (BizBio)	2012-2014
VP of Career Development, Graduate Student Association	2012-2014
Graduate Student Liaison for TJU Neuroscience Dept	2011-2013

Trainees Mentored

Postdoctoral Fellows (Teaching focus):

Christopher Panebianco, NIH UPenn PennPORT IRACDA fellow, Rutgers Camden	2023-2024
Tess Cherlin, NIH UPenn PennPORT IRACDA fellow, Rutgers Camden	2023
Camila Barrios-Camacho, NIH UPenn PennPORT IRACDA fellow, Rutgers Camden	2022-2023
Steven Foltz, NIH UPenn PennPORT IRACDA fellow, Rutgers Camden	2021-2022
Joseph Zinski, NIH UPenn PennPORT IRACDA fellow, Rutgers Camden	2020-2021
Edward Waddell, NIH UPenn PennPORT IRACDA fellow, Rutgers Camden	2020
Launched into faculty position at Holy Family University	

Graduate student (Mentored Paper-Based Track):

Isabella Baduini, BS in Biology, Rutgers Camden	2023-2024
Ubaidah Khan, MS Biomed, Rutgers New Brunswick	2022-2023
Mariam Shehata, MS Bio, Rutgers Camden	2022-2023
Cindy Garcia, MS Bio, Rutgers Camden	2020-2022
Launched into research role at WuXi AppTec	
Daniel Fricker, MS Bio, Rutgers Camden	2020
Lakeshia Gary, MS Bio, Rutgers Camden	2020

Graduate student (Thesis Committee):

Jose Castro Vildosola, MS Bio, research-based track, Rutgers Camden	2024
Nasira Tajamal, MS Bio, research-based track, Rutgers Camden	2024
Rose L. Tong, MS Bio, research-based track, Rutgers Camden	2023
Anna Waite, MS Bio, course-based track, Rutgers Camden	2021
Lea Marano, MS Bio, course-based track, Rutgers Camden	2021
Ourania Nikolaidis, MS Bio, research-based track, Rutgers Camden	2021
Christina Curran-Alfaro, MS Bio, research-based track, Rutgers Camden	2019-2020
Launched into PhD program in Neuroscience at Drexel University	

Undergraduates (Mentored Research):

Sierra Hickey, BS in Biology, Rutgers Camden	2024
Kiley Kobsar, BS in Biology, Rutgers Camden	2023-
Kimberly Lugo, BS in Nursing, Rutgers Camden	2023-
Elizabeth Hardy (MARC fellow), BS in Biology, Rutgers Camden	2022-2024
Sandy Lam (MARC fellow), BS in Biology, Rutgers Camden	2022-2023
Alexa Wilson, BS in Biology, Rutgers Camden	2022-2023
Amayah Wood, BS in Biology, Rutgers Camden	2023
Rosemarie Arroyo-Martinez, BS in Biology, Rutgers Camden	2022
Isabella Baduini, BS in Biology, Rutgers Camden	2022-2023
Kadine Powell, BS in Biology, Rutgers Camden	2022-2023
Kinjal Mody, BS in Biology, Rutgers Camden	2021-2022
John Crespo, BS in Biology (MARC fellow), Rutgers Camden	2020-2023
Kiyoshi Woods, BS in Biology, Rutgers Camden	2020-2023
Christina Suoto, BS in Biology, Rutgers Camden	2021-2022
Akshay Shah, BS in Biochemistry, Rutgers Camden	2021

Ajay Shah, BS in Health Sciences, Rutgers Camden	2021
Gilharia Delva, BS in Health Sciences, Rutgers Camden	2020
Sara D'Angelo, BS in Biology, Rutgers Camden	2020-2021
Launched into lab tech at Children's Hospital of Philadelphia	
Brittany Ruiz, BS in Biology, Rutgers Camden	2020
Launched into PhD program at Thomas Jefferson University	
Shariq Khan, BS in Biology (MARC fellow), Rutgers Camden	2019-2021
Launched into lab tech at University of Pennsylvania	
Jenny Pan, BS in Biology, Rutgers University Camden	2019-2020
Launched into pharmacy tech at University of Pennsylvania	
Robert Hughes, BS in Health Sciences, Rutgers University Camden	2019-2021
Launched into lab tech at Thomas Jefferson University	
Ubaidah Khan, BS in Biology, Rutgers University Camden	2019-2020
Launched into MS in Biology at Rutgers New Brunswick	
Meghan Wachira, BS in Biology, Rutgers University Camden	2019-2020
Launched into Research Postbac in NIH funded UPenn Genomics Program	
Azikiwea Green, BS in Neuroscience, Swarthmore College	2017-2018
Launched into tech at University of Pennsylvania	
Dragan Vujovic, BS in Chemistry, Williams College	2016
Launched into Clinical Research Coordinator at University of Pennsylvania	
Purnika Selvan, BS in Biology, University of California, Irvine	2015
Launched into Junior Research Specialist at UC Irvine	

Undergraduates (Honors Thesis Committee):

Aiman Nadeem, BS in Biology	2022-2023
Malaika Mahmood, BS in Biology	2021-2022
Transitioned to research technician at University of Pennsylvania	
Anthony Monte Carlo, BS in Biology	2021-2022
Transitioned to PhD student at Thomas Jefferson University	
Taqdees Gohar, BS in Biology	2021-2022
Transitioned to research postbach at Johns Hopkins University	
Sienna Casciato, BS in Biology	2021-2022
Transitioned to PhD student at Johns Hopkins University	
Julianna Jimenez, BS in Biology	2021-2022
Harjit Khaira, BS in Biology, Rutgers Camden	2020-2021
Transitioned to PhD student at Johns Hopkins University	
Anna Liang, BS in Biology, Rutgers Camden	2020-2021
Transitioned to lab tech at Children's Hospital of Philadelphia	