

# Elizabeth Wright

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## EDUCATION:

**University of Arizona**, Tucson, AZ

Doctor of Philosophy in Neuroscience, Expected Graduation 2024

- 3.765 GPA Spring 2021

**Bradley University**, Peoria, IL

Bachelor of Science in Biochemistry and Psychology (double major), Graduation May 2019

- Neuroscience Minor
- 3.69 GPA Spring 2019

## RESEARCH EXPERIENCE:

**Martha Bhattacharya, PhD, Department of Neuroscience, University of Arizona**

*Graduate Research Assistant*, August 2020-present

Loss of TMEM184b in mice causes progressive swellings in both motor and sensory nerve terminals, and also causes sensorimotor deficits. In addition to these nerve terminal phenotypes, reduction of TMEM184b in *Drosophila* or in mice leads to prolonged axon integrity after injury, suggesting TMEM184b contributes to axon degeneration. Accumulations of autophagosomes and lysosomes, compartments responsible for protein and organelle degradation, are seen in mutant tissues. Based on these data, we hypothesize that TMEM184b regulates a step in autophagy, a key process in many neurodegenerative diseases.

- Completed analyses of RNA sequencing data from hippocampi of wild type and TMEM184b knockdown mice
  - Utilized Panther Classification System to identify proteins in similar pathways
- Currently determining the role of TMEM184b in regulating endolysosomal trafficking and/or autophagy
  - Performing sciatic nerve ligation surgeries in TMEM184b knockout mice and wild-type controls
    - Optimized protocols for visualizing injury in sciatic nerves via immunostaining and analyzing protein accumulations via western blot
  - Conducting luciferase assays in cell culture to determine possible reporter genes regulated by TMEM184b

**Katalin Gothard, MD, PhD, Department of Physiology, University of Arizona**

*Graduate Research Assistant*, November 2019-February 2020

As our first emotional language, touch is incredibly important in forming social bonds. The amygdala is the central hub for emotional processing in the brain that plays a role in bond formation. However, little research shows the relationship between touch and emotion at the cellular level in the amygdala. Dr. Gothard's lab is investigating the link between social touch and emotion at a cellular level in the brain. However, touch processing of the amygdala is unknown. Therefore, the lab is exploring neural responses to touch in the amygdala of non-human primates in order to elucidate the underlying components of affective touch.

- Shadow experiments collecting electrophysiological responses to touch
- Analyze neural cell activity and heart rate data utilizing Plexon software

**Timothy Koeltzow, PhD, Department of Psychology, Bradley University**

*Research Assistant*, Drug Abuse Research Lab, August 2016-May 2019

The current study aims to further elucidate the behavioral and neurophysiological differences between adolescent and adult rats with PTSD. The single prolonged stress (SPS) rat model of PTSD is utilized to produce an enhanced fear response and disrupted glucocorticoid regulation similar to that observed in humans with PTSD. A future aim of this research includes uncovering methods in which we are able to separate adolescent rats into vulnerable or resilient groups prior to stress induction.

- Served as lead research assistant, May 2018-May 2019
  - Trained all incoming lab members
  - Managed scheduling for SPS inductions and data collection
  - Conducted all data analysis via SPSS
  - Acquired funding from both internal and external sources for continuation of research
- Completed senior thesis through Psychology Department Honor's Program, 2018-2019
  - "Establishing a Model of Post-Traumatic Stress Disorder in Adolescent Rats"

## PUBLICATIONS

- Larsen, E.G., Cho, T.S., McBride, M.L., Feng, J., Manivannan, B., Madura, C., Klein, N.E. **Wright, E.B.**, Garcia-Verdugo, H.D., Jarvis, C., Khanna, R., Hu, H., Largent-Milnes, T.M., Bhattacharya, M.R.C. (2021). Tmem184b is necessary for IL-31 induced itch. *Pain*. doi: 10.1097/j.pain.0000000000002452

## PRESENTATIONS

- Larsen, E.G., Cho, T.S., McBride, M.L., Feng, J., Manivannan, B., Madura, C., Klein, N.E. **Wright, E.B.**, Garcia-Verdugo, H.D., Jarvis, C., Khanna, R., Hu, H., Largent-Milnes, T.M., Bhattacharya, M.R.C. (2021). Tmem184b is necessary for IL-31 induced itch. Presenting at the Annual Society for Neuroscience Meeting (Virtual).
- **Wright, E.B.**, Ruyle, M.T., Cheline, B.C., Mercado, J.M. & Koeltzow, T.E. (2018). Establishing a model of PTSD in adolescent rats. Presented at the Annual Society for Neuroscience Meeting, San Diego, CA.
- College of Liberal Arts and Sciences Summer Undergraduate Research and Artistry Colloquium, 2018.
- **Wright, E.B.**, Ruyle, M.T., McMillan, S.D., & Koeltzow, T.E. (2018) Establishing a model of PTSD in adolescent rats. Psi Chi Poster Session, *Program*, 275. Eighty-Ninth Annual Meeting, Midwestern Psychological Association, Chicago, IL.
- Department of Psychology's Honor's Colloquium, April 2018
- **Wright, E.B.**, Garrison, A.L., O'Russa, J.P. & Koeltzow, T.E. (2017). Establishing a modified model of PTSD in adolescent rats. Presented at the Annual Meeting of the Faculty for Undergraduate Neuroscience at the Society for Neuroscience Meeting, Washington, D.C.

## HONORS AND AWARDS

- Society for Neuroscience Trainee Professional Development Award, 2021
- Graduate and Professional Student Council Travel Grant, 2021
- College of Liberal Arts and Sciences Summer Undergraduate Research and Artistry Fellow, 2018
- Spring Undergraduate Psi Chi Research Grant, 2018
- Mund-Lugowski Department of Chemistry and Biochemistry John H. Shroyer Scholarship, recipient, April 2017-2018
- Nominated for Barry Goldwater Research Scholarship, 2018
- Two Sherry Endowment Travel Grants from Bradley University to fund travel to MPA and SfN, 2017
- Special Emphasis Program Grant at Bradley University to fund travel to SfN, 2017
- Thomas F. O'Grady Experiential Learning Endowment Fund, Dept. of Psychology, 2017
- Bradley University Presidential Scholarship, August 2015-May 2019
- Bradley University Continuing Excellence Scholarship, January 2018-May 2019

## WORK EXPERIENCE:

Brain Communication Networks, **University of Arizona**, Tucson AZ, Spring 2021

- Organized lab sessions, as well as experiments for students
- Led lab sessions independently and supervised students
- Aided students with troubleshooting computational analyses using R software

Behavioral Neuroscience, **Bradley University**, Peoria, IL, Fall 2018

- Tutored psychology and biology majors in course material
- Held review sessions for students prior to exams
- Assisted in organizing sheep brain lab practical

Computer Assistant, **University of Illinois College of Medicine at Peoria**, Peoria, IL May 2017-May 2019

- Assist Dr. Alfonse Masi in research collaborations with other colleagues
- Generated manuscripts and edit documents from other collaborators
- Conducted database searches to find relevant articles for meta-analyses

Student Tutor, **Center for Learning and Access**, Bradley University, Peoria, IL August 2016-May 2017

- Tutored students in General Chemistry courses
- Worked with both chemistry majors and non-chemistry majors
- Assisted in improving students' studying and organizational skills

## ACTIVITY

- Nu Rho Psi, member, 2017-present
  - President of Bradley University's Nu Rho Psi executive board, 2018-2019
  - Vice President of Bradley University's Nu Rho Psi executive board, 2017-2018
- Psi Chi, member, 2017-present
  - Compliance Officer for Bradley University's Psi Chi executive board, 2018-2019
  - Public Relations and Secretary/Treasurer Officer for Bradley University's Psi Chi executive board, 2017-2018