

PhD Candidate using Molecular Dynamics simulations to study the structure, function, and mechanism of membrane transport proteins. Passionate about communication at the teaching, research, and public level, and at improving the accessibility of science and higher education to all communities.

Education

2018 – Present

University of Texas at Dallas

PhD – Chemistry & Biochemistry

- Advisor: Dr. Hedieh Torabifard (2021 - present)
Dr. Steven Nielsen (2018 – 2021)
- Research Area: Computational chemistry to study biological systems

2013 – 2018

Texas A&M University – Commerce

B.S. – Chemistry, Magna Cum Laude

- Advisor: Dr. Bukuo Ni
- Research Area: Organic synthesis

Experience

2022 – Present

Grants & Communications Director

Science Mentorship Institute

- Setting up organizational infrastructure for a nonprofit organization dedicated to helping underprivileged students from around the world gain experience and mentorship in scientific research
- Finding and applying for funding opportunities

2022 – Present

President

Chemistry Graduate Student Association, University of Texas at Dallas

- Planning and organizing events and seminars dedicated to helping new graduate students acclimate to the program and be set up for success
- Working with administration within the department and university campus to improve both the working and personal lives of graduate students
- Promoting diverse voices and viewpoints within the organization

2018 – Present

Teaching Assistant

Computational, Physical, and General Chemistry, University of Texas at Dallas

- Aiding student comprehension of concepts in general chemistry, physical chemistry, and computational chemistry
- Working with instructors and lab coordinator to modify curriculum to improve student comprehension
- Recognizing common student pitfalls and developing preventative measures to implement during class and lab periods

2016 – 2018

Ronald E. McNair Scholar

Texas A&M University – Commerce

- Developed and performed a 10-week research project in organic synthesis
- Attended and presented at several conferences
- Worked to aid understanding of why research is important and what unique struggles underrepresented groups face

Awards

1. Merck Research Award for Underrepresented Chemists of Color (2022)
2. Outstanding Graduate Teaching Assistant (2022)

Publications

1. Mills, K.R., and Torabifard, H. “Uncovering the Mechanism of the Proton-Coupled Fluoride Transport in the CLC^F Antiporter”, *Under Review*
2. Mills, K.R., Baglia, R.A., Mitra, K., Tutol, J.N., Ball, D., Page, K.M., Kallu, J., Gottipolu, S., D’Arcy, S., Nielsen, S.O., and Dodani, S.C.. “An activity-based fluorescent sensor for the detection of the phenol sulfotransferase SULT1A1 in living cells”, *RSC Chem. Biol.*, 2021, 2, 830-834

** This article is part of the themed collections: Analytical methods in chemical biology and RSC Chemical Biology Editors' Choice*

Presentations

1. Oral Presentation: ACS Southwest Regional Meeting (2022) “Computational Study of a YAP/TAZ-TEAD Inhibitor”
2. Poster Presentation: University of Texas at Dallas Research Day (2022) “Uncovering Mechanism of Fluoride Transport in CLC^F Protein”
3. Oral Presentation: 263rd ACS National Meeting (2022) “Investigation of coupled proton transport in CLC^F F⁻/H⁺ Antiporter”
4. Oral Presentation: ACS DFW Meeting in Miniature (2022) “Molecular Dynamics Study of the Proton-Coupled Fluoride Transport in the CLC^F F⁻/H⁺ Antiporter”
** This presentation won 2nd place in the Physical/Computational section for best presentation*
5. Oral Presentation: ACS Southwest Regional Meeting (2021) “Computational Study of CLC^F F⁻/H⁺ Antiporter Protein”
6. Oral Presentation: 255th ACS National Meeting (2018) “Diarylpyrrolinol silyl ether as organocatalyst for asymmetric cycloaddition of α,β -unsaturated aldehydes to 3-hydroxyoxindoles to produce spirocyclic δ -lactones in aqueous media”
7. Oral Presentation: Texas National McNair Research Conference (2018) “Synthesis of spirocyclic δ -lactones by asymmetric organocatalytic reactions”
8. Poster Presentation: 14th Annual Pathways Student Research Symposium (2017) “Synthesis of spirocyclic δ -lactones...”
9. Poster Presentation: ACS Southwest Regional Meeting (2017) “Synthesis of spirocyclic δ -lactones...”
10. Oral Presentation: TRiO McNair Scholars Showcase (2017) “Synthesis of spirocyclic δ -lactones...”
11. Oral Presentation: Gulf Coast Student Success Conference (2016) “Teaching Scientific Writing, Even as a Non-STEM Peer Educator”