Geraline Trossi-Torres

(787) 240-4868 |tros2500@vandals.uidaho.edu

EDUCATION

2023 - Present
Ph.D. Student | Microbiology/Molecular Biology/Biochemistry (MMBB)
University of Idaho, Moscow, ID

2020 - 2022
Master's Degree of Science | Biomolecular Sciences
Boise State University, Boise, ID

2016 - 2018
Master's Degree of Science | Biotechnology
Pontifical Catholic University of Puerto Rico, Ponce, PR

2011 - 2016
Bachelor's Degree of Science | Biotechnology
University of Puerto Rico - Ponce, Ponce, PR

PUBLICATIONS

- Hazen, P., **Trossi-Torres, G.**, Timsina, R., Khadka, N. K., & Mainali, L. (2024). Association of Alpha-Crystallin with Human Cortical and Nuclear Lens Lipid Membrane Increases with the Grade of Cortical and Nuclear Cataract. International journal of molecular sciences, 25(3), 1936.

- Timsina, R., Hazen, P., **Trossi-Torres, G.**, Khadka, N. K., Kalkat, N., & Mainali, L. (2024). Cholesterol Content Regulates the Interaction of αA-, αB-, and α-Crystallin with the Model of Human Lens-Lipid Membranes. International journal of molecular sciences, 25(3), 1923.

- Hazen, P., **Trossi-Torres, G.**, Khadka, N. K., Timsina, R., & Mainali, L. (2023). Binding of βL-Crystallin with Models of Animal and Human Eye Lens-Lipid Membrane. International journal of molecular sciences, 24(17), 13600.

- **Trossi-Torres, G.**, Timsina, R., & Mainali, L. (2022). Alpha-Crystallin-Membrane Association Modulated by Phospholipid Acyl Chain Length and Degree of Unsaturation. Membranes, 12(5), 455.

- Timsina, R., **Trossi-Torres, G.**, Thieme, J., O'Dell, M., Khadka, N. K., & Mainali, L. (2022). Alpha-Crystallin Association with the Model of Human and Animal Eye Lens-Lipid Membranes is Modulated by Surface Hydrophobicity of Membranes. Current eye research, 47(6), 843–853.

- Timsina, R., **Trossi-Torres, G.**, O'Dell, M., Khadka, N. K., & Mainali, L. (2021). Cholesterol and cholesterol bilayer domains inhibit binding of alpha-crystallin to the membranes made of the major phospholipids of eye lens fiber cell plasma membranes. Experimental eye research, 206, 108544.

- Ocasio-Rivera, M., Marin-Maldonado, F., **Trossi-Torres, G.**, Ortiz-Rosado, A., Rodríguez-Irizarry, V., Rodriguez-Lopez, E., Martínez, S., Almodóvar, S., & Suarez-Martínez, E. (2020). Targeting of protease activator receptor-2 (PAR-2) antagonist FSLLRY-NH2 as an asthma adjuvant therapy. Medicine, 99(43), e22351.

AWARDS

2020 - 2022
NSF LSAMP | Bridge to Doctorate Fellowship
Boise State University| Boise, ID

2016 - 2018
Master's Degree with Honors | Magna Cum Laude
Pontifical Catholic University of Puerto Rico| Ponce, PR

RESEARCH EXPERIENCE

Fall 2022
Research Assistantship
Boise State University| Boise, ID

- Researched in the interaction of α-crystallin (lens protein) with membrane cholesterol and cholesterol bilayer domains in the human eye lens plasma membrane
- Modulated α-crystallin by different acyl chain lengths and degrees of unsaturation of the lens membrane
- Conducted experiments utilizing biophysical instrumentation (Electron Paramagnetic Resonance (EPR))

2017-2018
Master's Student
Pontifical Catholic University of Puerto Rico| Ponce, PR

- Studied the mechanism of calcium sulfide (CaS) nanoclusters in a pancreatic cancer cell line
- Researched the effects of CaS in proliferation and migration of pancreatic cancer
- Evaluated the influence of genetic variants on the inflammatory response and the severity of asthma in Puerto Ricans

PROFESIONAL EXPERIENCE

2023
Research Technician | Biophysics Research Laboratory
Boise State University| Boise, ID

- Isolated Human Eye Lens Lipids and prepared human model membrane
- Studied how can α-crystallin is temperature dependent by using a cow model lens membrane
- Conducted experiments utilizing biophysical instrumentation (Electron Paramagnetic Resonance (EPR))

2019- 2020
Program Coordinator | UPR-PRISE Program (NIH-NIGMS RISE)
University of Puerto Rico - Ponce| Ponce, PR

- Managed RISE activities, and seminars
- Managed funds to purchase lab materials and oversaw students' payroll
- Supervised and oversaw students' conduct in the program

2018-2019
Research Coordinator | UPR-PRISE Program (NIH-NIGMS RISE)
University of Puerto Rico - Ponce| Ponce, PR

- Supervised and trained new students in lab techniques
- Managed lab materials and equipment
- Oversaw ongoing research projects in the research lab

POSTER PRESENTATIONS

- Phospholipid Acyl Chain Length and Degree of Unsaturation Modulate the Association of α-crystallin with Membrane. **2022 Graduate Student Showcase**; Boise State University, Boise, ID, 2022.

- Phospholipid Acyl Chain Length and Degree of Unsaturation Modulate α-Crystallin Binding to the Membrane. **66th Biophysical Society Annual Meeting**; San Francisco, CA, 2022.

- Role Cholesterol on Alpha-Crystallin Binding to Phosphatidylserine Membrane Cholesterol Inhibits Binding of Alpha-Crystallin to Phosphatidylserine Membrane. **2021 Graduate Student Showcase**; Boise State University, Boise, ID, 2021.

- Role Cholesterol on Alpha-Crystallin Binding to Phosphatidylserine Membrane Cholesterol Inhibits Binding of Alpha-Crystallin to Phosphatidylserine Membrane. **65th Biophysical Society Annual Meeting**; Virtual Conference, 2021.

- Effect of Calcium Sulfide Nanoclusters in Cell Proliferation of Malignant Lung and Pancreatic Cell Lines. **2018 Junior Technical Meeting (JTM/PRISM - PR-LSAMP)**; University of Turabo, Gurabo, PR, 2018.

- Effect of Calcium Sulfide Nanoclusters in Cell Proliferation of Malignant Lung and Pancreatic Cell Lines. **2018 Experimental Biology**; San Diego, CA, 2018.

- CXCR4 and Apoptotic Markers Expression in Normal and Breast Carcinoma Cell Lines Treated with Resveratrol. **"VIII Congreso de Investigación y Creación Estudiantil"**; University of Puerto Rico – Ponce, Ponce, PR, 2016.

TEACHING EXPERIENCE

2023 - Present
Teaching Assistantship | BIOL 115L - Cells and Evolution of Life Lab
University of Idaho| Moscow, ID

TEACHING EXPERIENCE

- Cell Culture Techniques

- **Protocols:** Model Membrane Sample Preparation, Rapid Exchange Method, MTT Assay, BrdU Proliferation Assay, DNA Extraction, Protein Extraction, BCA Assay, Western Blot, Wound Healing Assay, Intracellular Calcium Assay, Extracellular Calcium Assay, Density Gradient Separation of Complete Whole Blood, Antioxidant Assay, and Purification of Eosinophils

- **Equipment:** Continuous-Wave Electron Paramagnetic Resonance (CW-EPR), Probe-Tip Sonicator, Dynamic Light Scattering (DLS), Differential Scanning Calorimetry (DSC), Azure Biosystem C600, Muse Flow Cytometry, Biotek Reader, K2 Cellometer, and Zoe Imager

- **Software Programs:** R Studio, GraphPad Prism 9, Origin Pro 2021, Corel Draw 2017, CS Chem3D Pro (Molecular Modeling and Analysis), Dynamics Ver. 7.10 (DLS Control Software), and IBM SPSS Statistics 25