GAELEN D. GUZMAN, PhD

gaelenguzman@gmail.com · (208)-651-1748 · Dissertation · ORCID

EDUCATION

Oregon Health and Science University — Portland, OR
PhD in Molecular Microbiology and Immunology — *Sept 2017 - Feb 2024*

Massachusetts Institute of Technology — Cambridge, MA
Bachelor of Science in Biology — *Sept 2010 - June 2014*

AWARDS, HONORS, AND GRANT APPOINTMENTS

- 2023: Award for Best Question – Sphingolipid Biology FEBS Special Meeting; Funchal, Portugal
- 2023: Rittenberg Meritorious Travel Award; OHSU, Portland, OR, USA
- 2023: Award for Excellent Talk by a Trainee – International Ceramide Conference; Charleston, NC, USA
- 2023: Sears Microbiology Fellowship Award; OHSU, Portland, OR, USA
- 2022: T32 Graduate Fellow – Pulmonary and Critical Care Medicine; OHSU, Portland, OR, USA
- 2021: T32 Graduate Fellow – Program in Enhanced Research Training; OHSU, Portland, OR, USA
- 2018: Henry Collins Foundational Fellowship; OHSU, Portland, OR, USA
- 2017-2020: Graduate Fellow – Early Independence Fellowship Award; OHSU, Portland, OR, USA
- 2017: Promising Scholars Award; OHSU, Portland, OR, USA

RESEARCH AND PROFESSIONAL EXPERIENCE

Tafesse Lab, OHSU — Portland, OR
Graduate Researcher — *Mar 2018 - Mar 2024*

My PhD work focused on unraveling the manners that host sphingolipids influence the progression of a *Mycobacterium tuberculosis* infection. To this end, I applied Bio Safety Level 3 techniques in conjunction with lipidomics, proteomics, and molecular biology staples (CRISPR gene editing, fluorescence microscopy, phagocytosis and cell death assays, among many others).

- I published a major publication in mBio with our work, as co-first author. Additionally, I published two literature reviews, one methods paper, a reserach article preprint, and listed as co-author on several reesarch publications.
- I presented my work in poster or talk form at 9 domestic and international meetings.
- In addition to directly managing my own project, I directly mentored and trained 5 members of the Tafesse lab, including three graduate students and two research assistants.

Proteomics Platform, Broad Institute — Cambridge, MA
Research Associate II — *Mar 2014 - June 2017*

- Performed proteomic experiments in collaboration with numerous Broad, MIT, Cambridge (UK), and Harvard laboratories, as well as several Cambridge (MA)-based pharmaceutical companies.
- Applied quantitative proteomics and data-dependent mass spectrometry to elucidate proteomic interaction partners of target proteins and small molecules to better understand the underlying mechanisms of and identify therapeutic options for diseases such as Alzheimer's Disease, Inflammatory Bowel Disease, Type 2 Diabetes, and Myocardial Infarction.
- Independently managed over eighty-five experiments through sample preparation, mass spec analysis, and data analysis.
- Presented experimental results at group meetings and collaborative meetings, as well as in poster form at the First and Second Annual Broad RA/TS poster sessions (2015 and 2016).

SKILLS AND HOBBIES

Laboratory techniques/skills: Bio Safety Level 3 technique, mammalian tissue culture, *in vitro* bacterial & viral infections, CRISPR gene editing, transfection & transduction, fluorescence microscopy, flow cytometry, thin layer chromatography, phagocytosis & viability assays, proteomics & lipidomics sample preparation. **Software and Data analysis:** R (tidyverse, ggplot, plotly, shiny), Quarto Markdown, LaTex, Microsoft suite, FIJI/ImageJ, Adobe Illustrator, PRISM, FloJo, ZEN Imaging Software, Xcalibur.

I am an avid rock climber, cyclist, hiker, and runner. I've come to love the fickle Portland weather and enjoy all excuses to be active and outdoors. I am a new father, and could not be more excited to show my son to the world.

PRIMARY AUTHORSHIP PUBLICATIONS

Guzman, G., Tafesse, F. G. (2023) Systematic analysis of the sphingomyelin synthase family in C. elegans. Preprint on BioRxiv https://doi.org/10.1101/2023.07.25.550547

Guzman, G., Farley, S. E., Creek., C. Tafesse, F. G. (2023) Genetic tools for studying the roles of sphingolipids in viral infections. Methods in Molecular Biology, ISBN 9781071628942 (Book chapter). https://doi.org/10.1007/978-1-0716-2895-9_1

Niekamp, P.*, Guzman, G.*, Leier, H. C., Rashidfarrokhi, A., Richina, V., Pott, F., Barisch, C., Holthuis, J. C. M. M., & Tafesse, F.G. (2021). Sphingomyelin Biosynthesis Is Essential for Phagocytic Signaling during Mycobacterium tuberculosis Host Cell Entry. MBio, 12(1), 1–19. https://doi.org/10.1128/mBio.03141-20 *(*co-first authorship)*

Guzman, G., Niekamp, P., & Tafesse, F. G. (2020). The Squeaky Yeast Gets Greased: The Roles of Host Lipids in the Clearance of Pathogenic Fungi. Journal of Fungi, 6(1), 19. https://doi.org/10.3390/jof6010019

Guzman, G., & Tafesse, F. G. (2020). Visualization and Quantification of Phagocytosis by Neutrophils (pp. 141–148). https://doi.org/10.1007/978-1-0716-0154-9_11