




MELANIE ORTIZ- ALVAREZ DE LA CAMPA

melanie_ortiz@brown.edu 
linkedin.com/in/melanieortizalvarez 
<https://lnk.bio/7Vdw> 

OVERVIEW

Second year in Brown's Pathobiology PhD program interested in using data science to study microbial metabolic activity and its impact on environmental settings. In my free time, I do artwork commissions for charity and freelance essay and poetry writing.

EDUCATION

PhD in Pathobiology | Brown University

SEPTEMBER 2021 – PRESENT

- Research Mentor: Dr. Peter Belenky

B.S. Integrative Biology | University of Puerto Rico-Rio Piedras Campus

AUGUST 2016 – MAY 2021

- Magna Cum Laude
- Minor Concentration: Medical Humanities

HONORS AND AWARDS

- Research Fellowships:
 - NIH T32 Predoctoral Training Grant in Biological Data Science Appointee (Aug 2022-present)
 - Brown Initiative to Maximize Student Development (IMSD) Fellow (Sep 2021- Aug 2022)
 - Oral presentation at IMSD Research in Progress Meeting
 - Maximizing Access to Research Careers (MARC) Fellow (Aug 2019-May 2021)
 - E-Poster presentation at ABRCMS 2020 Virtual Conference
 - Poster presentation at ABRCMS 2019 in Anaheim, CA
 - Big 10 Academic Alliance SROP Fellow at Rutgers University (Jun-Jul 2020)
 - Puerto Rico Louise-Stokes Alliance for Minority Participation (PR-LSAMP) (Aug 2018-May 2018)
 - Leadership Alliance SREIP Fellow (Jun 2018-Aug 2018)
 - Oral presentation at the Leadership Alliance National Symposium
 - Poster presentation Brown University Summer Research Symposium
- Scholarship and Academic Achievement:
 - Oliver Cromwell Gorton Arnold Biological Pre-Doctoral Award (Jun 2022-2023)
 - Designation is made by the Associate Dean for Graduate and Postdoctoral Studies in consultation with Graduate Program Directors

- UPR-Rio Piedras Honor Studies Program Fellow (August 2017-May 2021)
 - Designed and successfully defended a Jr. Thesis in May 2021
- UPR-Rio Piedras Dean's List of High Honors (January 2018-May 2021)
- Hispanic Scholarship Fund Scholar (August 2016-May 2021)
- **Community Service Awards:**
 - UN Millennium Fellowship Class of 2020 Fellow (Aug 2020-2021)
 - Developed a service project to provide financial and material aid for a local orphanage during the pandemic
 - U.S. President's Volunteer Gold Service Award (May 2016)



RESEARCH EXPERIENCE

Graduate Research Assistant | Dr. Peter Belenky Lab at Brown University

MAY 2022 – PRESENT

- Collaborated on a rotation project to conduct bioinformatic analysis of 16S sequencing data for two projects
- Mentored a Leadership Alliance SREIP student during the Summer 2022
- Currently developing a project with the aim of studying the impact of microbial metabolic activity on estuarine sediment and its role in climate change

NIH-MARC Research Fellow | Dr. Paul Bayman Lab at UPR Rio Piedras

AUGUST 2019 – MAY 2021

- Developed a Jr. Thesis project to evaluate the prevalence, incidence and genetic diversity of *Coleosporium plumeriae*, an invasive rust fungus in Puerto Rico
- Conducted field work to evaluate ecological growing conditions of *C. plumeriae*, documenting over 150 trees across 16 municipalities.
- Collected spore samples for DNA extraction, ran PCR for sequencing samples and used sequences to construct a phylogenetic tree for *C. plumeriae*

RISE Big Ten Fellow | Dr. Maria Dominguez-Bello Lab at Rutgers University

JUNE 2020 – JULY 2020

- Collaborated on a review article on the urban life impacts on the human microbiome. I wrote the sections dedicated to the intergenerational transmission of human microbes and modern plagues. I am currently collaborating on other sections of this article.
- Conducted an extensive literature review and presented a poster in the RISE at Rutgers's Virtual Capstone event

Undergraduate Research Assistant | Crystallization Design Institute

AUGUST 2018 – MAY 2019

- Developed an optimized method for solubility determination using the Crystal 16 Crystallization System to minimize the amount of solute needed for solubility testing. Presented my results at ABRCMS 2019.
- Learned diverse analytical chemistry skills, including Differential Scanning Calorimetry, Thermo Gravitational Analysis and Powder X-Ray Diffraction
- Participated in weekly and monthly group research meetings and local high school Scientific Outreach activities through *CreandoConciencia*
- Research funded by Puerto Rico Louise-Stokes Alliance for Minority Participation (PR-LSAMP)

Leadership Alliance SREIP Fellow | Dr. Peter Belenky Lab at Brown University

JUNE 2018 – AUGUST 2018

- Developed a project to determine the impact of the host metabolism on antibiotic resistance using an *in vitro* model for diabetic patients.
- Conducted bacterial kill curve experiments to test if different living conditions contributed to the antibiotic tolerance of *Staphylococcus aureus*. I found that high glucose environments (diabetic model) did increase antibiotic tolerance.
- During my last week in the program, I assisted with second phase of this project to repeat the experiments *in vivo* with mice. I helped infect the mice with *S. aureus* and administered antibiotics.

Undergraduate Research Assistant | Dr. Dov Sax Lab at Brown University

DECEMBER 2017 – MAY 2018

- Researched the botanical documentation history of 100 plant species and their ecological growing conditions. This information was used by the lab to develop a climate change prediction tool to determine how changing conditions would impact native species.
- Compared my findings with the species distributions reported in the BONAP database, and recorded if I noticed any anomalies (example: a species being recorded as being located in a specific county, but was not entered in the database).
- Compiled weekly status reports and discussed next steps with my mentor regularly



TEACHING EXPERIENCE

Co-Founder & Content Creator | Ciencia Pa' Todes (@cienciapatodes)

AUGUST 2020 – PRESENT

- Co-founded a science communication initiative aimed towards decolonizing access to scientific knowledge for underrepresented groups in the Caribbean and beyond
- Researched and prepared content for both our Instagram and Facebook pages on a variety of topics, including COVID-19, Racism in Academia, Queerness in STEM, etc.
- Coordinated and hosted a live panel discussion regarding the use of Inclusive Language in Academic settings. Recording is available on our YouTube ([@cienciapatodes](#))
- Developed a documentary series on Intersexuality, the first of its kind in Latin America. Available on YouTube.



CONFERENCE PRESENTATIONS

- Ortiz, M., Bayman, P., (2022, June). *Genetic Diversity and Prevalence of Coleosporium plumeriae, an Invasive Fungus in Puerto Rico*. Oral Presentation at the SACNAS New England Regional Conference in Providence, RI
- Ortiz, M., Bayman, P., (2021, April). *Genetic Diversity and Prevalence of Coleosporium plumeriae, an Invasive Fungus in Puerto Rico*. Oral Presentation at the 6to Encuentro Subgraduado de Criaas in San Juan, PR.
- Ortiz, M., Caldwell, M., Bayman, P., (2020, November). *Incidence and Severity of Coleosporium plumeriae, an Invasive Fungus in Puerto Rico*. E-Poster Presentation at the Virtual Annual Biomedical Research Conference for Minority Students (ABRCMS 2020).
- Ortiz, M., Stelzer, T., Lopez, V., (2019, November). *A Minimalistic Method for Solubility Determination: A Step Towards Continuous Process Development*. Poster Presentation at the Annual Biomedical Research Conference for Minority Students (ABRCMS 2019) in Anaheim, California.
- Ortiz, M., Stelzer, T., Lopez, V., (2019, May). *A Minimalistic Method for Solubility Determination: A Step Towards Continuous Process Development*. Oral Presentation at the 53rd Junior Technical Meeting at the University of Puerto Rico, Mayaguez Campus.

- **Ortiz, M.**, (2019, April) *The First Time Forensic Entomology Helped Solve a Murder*. Poster session at the 9th Annual Conference for Climate and Society: Forensic Science at the Service of the Community at the University of Puerto Rico, Rio Piedras Campus.
- **Ortiz, M.**, (2019, April) *The Women That Led Me To STEM*. Oral Presentation at the XII Colloquium for Women at the University of Puerto Rico, Rio Piedras campus.
- **Ortiz, M.**, Wurster, J. & Belenky, P. (2019, April). *Impact of the Host Metabolism on Bacterial Antibiotic Responses*. Poster session at the XII Colloquium for Women at the University of Puerto Rico, Rio Piedras campus.
- **Ortiz, M.**, Wurster, J. & Belenky, P. (2018, December). *Impact of the Host Metabolism on Bacterial Antibiotic Responses*. Oral Presentation presented at the 5th ASBMB Annual Research Symposium at the University of Puerto Rico, Rio Piedras Campus.
- **Ortiz, M.**, Wurster, J. & Belenky, P. (2018, August). *Impact of the Host Metabolism on Bacterial Antibiotic Responses*. Poster session at the Brown University Research Symposium in Providence, RI
- **Ortiz, M.**, Wurster, J. & Belenky, P. (2018, August). *Impact of the Host Metabolism on Bacterial Antibiotic Responses*. Oral Presentation presented at the Leadership Alliance National Symposium in Hartford, CT



PUBLICATIONS

- **Peer-Reviewed**
 - **Ortiz, Melanie.** "Patient Other", Medical Comic Narrative, *Annals of Internal Medicine*, (Accepted 2022, in press)
 - Lubin JH, Zardecki C, Dolan EM, Lu C, Shen Z, Dutta S, Westbrook JD, Hudson BP, Goodsell DS, Williams JK, Voigt M, Sarma V, Xie L, Venkatachalam T, Arnold S, Alfaro Alvarado LH, Catalfano K, Khan A, McCarthy E, Staggers S, Tinsley B, Trudeau A, Singh J, Whitmore L, Zheng H, Benedek M, Currier J, Dresel M, Duvvuru A, Dyszel B, Fingar E, Hennen EM, Kirsch M, Khan AA, Labrie-Cleary C, Laporte S, Lenkeit E, Martin K, Orellana M, **Ortiz-Alvarez de la Campa M**, Paredes I, Wheeler B, Rupert A, Sam A, See K, Soto Zapata S, Craig PA, Hall BL, Jiang J, Koeppe JR, Mills SA, Pikaart MJ, Roberts R, Bromberg Y, Hoyer JS, Duffy S, Tischfield J, Ruiz FX, Arnold E, Baum J, Sandberg J, Brannigan G, Khare SD, Burley SK., "Evolution of the SARS-CoV-2 proteome in three dimensions (3D) during the first 6 months of the COVID-19 pandemic." *Proteins: Structure, Function, and Bioinformatics* 90.5 (2022): 1054-1080.
- **Not Peer-Reviewed**
 - Ohman, Anders, et al. "Ohman GS, **Ortiz-Alvarez** GS, Hutfilz GS: Brown's Covid Response Is Lacking amid Omicron Spike." *The Brown Daily Herald*, (2022), <https://www.browndailyherald.com/article/2022/02/ohman-gs-ortiz-alvarez-gs-hutfilz-gs-browns-covid-response-is-lacking-amid-omicron-spike>.
 - **Ortiz, Melanie.** "The Other She: Camp, Femininity and Internalized Homophobia in Netflix's The Boys in the Band." *Perspectivas LGBTTQIA+ (Edicion Especial -Noviembre 2021)*, Revista Cruce, (2021), https://issuu.com/revistacruce/docs/cruce_nov29
 - **Ortiz, Melanie.** "Grounded, Impostor Syndrome, Justice & Culture", *Shifter: Volume No. 1: Issue No. 2*. Edited by Federica Merante, *Shifter Magazine*, Shifter Media LLC, 2020, <https://issuu.com/shiftermag/docs/issue-2?ff>
 - **Ortiz, Melanie.** "Investigando En Pijamas Ante La Pandemia." *ENDI*, (2020), <https://www.elnuevodia.com/opinion/punto-de-vista/investigando-en-pijamas-ante-la-pandemia/>
 - **Ortiz, Melanie.** "UNICEF USA: Letter from Puerto Rico after the Storm." *Forbes*, Forbes Magazine, (2017),

<https://www.forbes.com/sites/unicefusa/2017/09/29/letter-from-puerto-rico-after-the-storm/amp/>

- **Ortiz, Melanie**, and Henry Goldberg. "The Truths We Ignore & the Lies We Believe." *UNICEF USA*, UNICEF USA, (2016), <https://www.unicefusa.org/stories/truths-we-ignore-lies-we-believe/30812>



SKILLS

Lab Skills: Oxford Nanopore Sequencing, 16S Sequencing, PCR, MIC, DNA extraction, Bacterial Cell Culture, Differential Scanning Calorimetry (DSC), Powder X-ray Diffraction (PXRD), Thermal Gravitational Analysis (TGA), Raman Microscopy, Mice Handling & Injection.

PC Skills: OSCAR/Linux, MS Office, MS Outlook, R Studio, Google drive, docs, sheets, etc.

Language: Fully Bilingual: Spanish- native and English- native.



EXTRACURRICULAR ACTIVITIES

Chair of Technology | Brown Graduate Student Council (GSC)

JUNE 2022 – PRESENT

Student Mentor | Community STEM at Brown University

OCTOBER 2021 – PRESENT

President and Founder | UNICEF Campus Initiative (UNICEF UPRRP)

AUGUST 2016 – MAY 2021

Opinion Writer and Content Creator | The Metric (thetric.org)

SEPTEMBER 2017 – PRESENT

HSF Youth Leadership Institute Mentor | Hispanic Scholarship Fund

JULY 2016

UNICEF National Council Region Leader | UNICEF High School Clubs

APRIL 2015 – JUNE 2016



CERTIFICATIONS

Social Dimensions of Health | UPR-IPERT Initiative at CienciaPR

MAY 2020

- This UPR-IPERT Accesible Education Program certification requires four modules:
 - *Research Ethics: Case Studies in Clinical and Social Research* by Dr. Nancy Romero Daza (Anthropologist, USF)
 - *Attention to social determinants of health to reduce health inequities* by Dr. Carlos Rodríguez Díaz (Public Health, UPR-RCM)
 - *The dissemination of scientific findings and community outreach with non-academic communities* by Dr. Aurinés Torres Sánchez (Public Health Educator - UPR-RCM)
 - *"Natural" disasters: A topic for bioethics* by Dr. Jorge Ferrer (Theologian and Bioethicist, Pontifical Catholic University of Puerto Rico)

Lean Six Sigma-Yellow Belt Certification | Bristol-Myers Squibb

JUNE 2019 – AUGUST 2019

- This certificate is granted to employees that successfully conduct a project that optimizes some aspect of the company's production process. I was trained on how to use Lean tools to organize and sustain a productive work environment. I worked independently on a 2-month project to optimize Data Integrity in the Quality Control Laboratories and reduced documentation delay in solubility testing by 40%.