

Esther Marie Vega Quiñones

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PROFESSIONAL SUMMARY

Medical Laboratory Scientist (ASCP certified) and Microbiologist with 4 years of experience coordinating federally funded microbiology projects, including PR-NARMS, USDA-ISISS, and USDA Dairy Chain initiatives. Proven expertise in project management, budget administration, student and staff supervision, SOP development, and multi-institutional collaboration. Experienced in bioinformatics, antimicrobial resistance (AMR) research, and whole genome sequencing (WGS). Skilled in data reporting, technical writing, and regulatory compliance. Proven ability to lead cross-functional teams and deliver high-impact scientific and administrative outcomes.

EDUCATION

Post-Bachelor's Degree in Medical Technology

University of Puerto Rico, Medical Sciences Campus

- ASCP Board Certification – Medical Laboratory Scientist
- Licensed Medical Technologist – Puerto Rico

San Juan, Puerto Rico
Graduated: December 2019

Bachelor's Degree in Microbiology

University of Puerto Rico – Arecibo Campus

Arecibo, Puerto Rico
Graduated: June 2018

RESEARCH AND PROJECT COORDINATION EXPERIENCE

Laboratory Technician (PR-NARMS Lead – Microbiology)

University of Puerto Rico Aguadilla & Mayagüez Campuses

November 2021 – August 2025

Role Overview: Coordinated microbiology and genomics activities for the PR-ARS (PR-NARMS) project, while supporting additional federally funded programs (USDA-ISISS and USDA Dairy Chain). Managed laboratory operations, field sampling, bioinformatics analyses, student mentorship, budgets, and reporting.

Key Achievements & Responsibilities

1. Project Coordination & Administration:
 - Planned and executed fieldwork, laboratory workflows, and sample collection across multiple sites, ensuring timely completion of project objectives.
 - Managed annual budgets of ~\$20,000 (FDA/USDA) and ~\$40,000 (USDA-ISISS, 2024-2025) overseeing purchase orders, inventory, and allocation of resources.
 - Developed and implemented SOPs for bacterial isolation, molecular techniques, and AMR analysis.
 - Prepared and submitted technical reports, dashboards, and productivity summaries for internal and external stakeholders (FDA, USDA, Penn State, PA DOH).
2. Supervision & Mentorship:
 - Supervised 12 undergraduate and 3 graduate students, including selection and onboarding of 2 Laboratory Technicians I (2023-2024).

- Trained students and staff in laboratory workflows, molecular biology techniques (DNA extraction, PCR, DNA isolation, LAMP), and bioinformatics analyses.
 - Developed educational workshops and training modules for students and county agents to mitigate AMR.
3. Research & Bioinformatics:
- Led PR-NARMS *Salmonella* spp. Project, producing first peer-reviewed publication in 4 years for the initiative.
 - Coordinated USDA-ISISS research on *Salmonella* and AMR in retail meat; supervised sample processing and bioinformatics analyses.
 - Participate in USDA Dairy Chain Project on-farm surveillance at 9 dairy farms, prioritizing cows with high California Mastitis Test (CMT) scores; prepared isolates for whole genome sequencing and AMR gene analysis.
 - Performed WGS assembly, annotation, and AMR gene analysis for *Salmonella*, *Campylobacter* and *E. coli* isolates.
 - Managed procurement for USDA-ISISS, including sourcing quotes for laboratory equipment and maintaining inventory of purchased items.
 - Maintained data dashboards and monthly reports tracking sample type, label claim, farm, and country of origin; provided prevalence and trend analyses.
4. Collaboration & Stakeholder Engagement:
- Participated in quarterly meetings with FDA, USDA, Penn State University, and PA DOH, presenting project updates, workflow optimizations, and research findings.
 - Acted as primary liaison between students, collaborators, and university administration to ensure smooth project execution.
 - Assisted in strategic decision-making on experimental design, prioritization of samples, and methodological protocols.

CLINICAL LABORATORY EXPERIENCE

Medical Technologist (Part-Time, 4 hrs/week) December 2024 - Present
Laboratorio Clínico RQ

- Conduct diagnostic testing in hematology, urinalysis, and parasitology, ensuring accuracy and quality control.

Medical Technologist September 2020 – November 2021
Laboratorio Clínico Portal del Sol

- Performed COVID-19 and routine clinical assays; ensured biosafety and compliance.

Medical Technologist July 2020 – December 2020
Hospital CIMA

- Conducted emergency/STAT testing; supported laboratory workflow efficiency and biosafety.

PROFESSIONAL DEVELOPMENT AND TRAINING

- Instructor, Workshop: Pathogen Genomics in Surveillance, Penn State College of Medicine (2024)
- Instructor, Workshop: Bioinformatics Training on GalaxyTrakr (2024–2025)
- Instructor, Workshop: Strategies for Prevention of Pathogens in Dairy Cattle, USDA ISISS-PR (2025)
- Participant, Certificate: Biomedical Responsible Conduct of Research (2024)
- Participant, Certificate: Proposal Writing and Fund Administration (2023)
- Participant, Certificate: Development of Federal Proposals & Fundraising (2023, 90 hrs)
- Participant, Webinar Series: Grant Writing (2025)

- Participant, Certificate: Responsible Conduct of Research for Administrators (2025)

PRESENTATIONS AND PUBLICATIONS

- **Lead author**, “*Prevalence and Antimicrobial Resistance of Non-typhoidal Salmonella in Retail Meat in Puerto Rico: A Two-Year Study (2022-2023)*” – Journal of Food Protection (2025)
- **Co-author**, “*Antimicrobial Resistance Profiles of Campylobacter spp. Isolated from Retail Meat in Puerto Rico*” – Microbiology Resource Announcements (2025)
- Poster presentation at PR Society for Microbiologists (2024)

TECHNICAL SKILLS

- **Molecular Biology:** DNA extraction, WGS preparation, PCR, LAMP, Qubit, NanoDrop
- **Bioinformatics & Databases:** GalaxyTrakr, NCBI Pathogen Detection, PubMed
- **Project Management & Reporting:** Excel, Power BI, Google Forms, SOP development, technical writing, budget tracking.
- **Programming:** Python (in progress)
- **Regulatory:** HIPAA-compliance, biosafety and protocols development.
- **Languages:** Spanish (Native), English (Professional)