

# Claudia A. Vera Arias, Ph.D.

• [claudia.vera.arias@gmail.com](mailto:claudia.vera.arias@gmail.com) • [linkedin.com/in/claudia-a-vera-arias90](https://www.linkedin.com/in/claudia-a-vera-arias90) • [DraVeraArias](https://www.instagram.com/DraVeraArias)

Proactive and results-oriented professional with extensive experience in molecular diagnostics, including PCR (conventional, nested, quantitative, and digital), molecular epidemiology, and infectious diseases. Served as Technical Director of Epidemiological Surveillance and National Reference Laboratories at the National Institute for Public Health Research (INSPI), leading the planning, implementation, and oversight of public health surveillance strategies, as well as coordinating technical teams and managing epidemiological data to inform decision-making. Experienced in fieldwork, cohort management, and evaluation of diagnostic technologies, including the Noul electron microscope and the OPTOLANE LOAA digital PCR platform. Strong background in clinical and laboratory best practices, supported by national and international training. Demonstrated strengths in effective communication, teamwork, and the ability to manage multiple projects in dynamic, high-demand environments. Author of multiple peer-reviewed scientific publications, with over 13 conference abstracts presented. Proven track record in training professionals across Ecuador, Ethiopia, Kenya, Uganda, and other countries.

## Areas of Expertise:

Infectious diseases	Clinical data management
Protocol/assay development	Molecular diagnostics
Presentation preparation/delivery	Strategic Planning and Leadership
Epidemiology	Digital PCR platforms
Study cohort design and implementation in the field	Molecular biology trainer (national and international)

## Professional Experience:

### *Independent Researcher*

Quito, Ecuador

June 2025 - Present

- I independently lead and contribute to research projects in molecular biology, microbiology, and infectious diseases, with a focus on diagnostics, antimicrobial resistance, and data-driven problem solving. I collaborate with academic and international partners, provide scientific consulting, and continue publishing peer-reviewed research.

### **National Institute of Public Health Research (INSPI)**

Guayaquil, Ecuador

*Technical Director of Epidemiological Surveillance and National Reference Laboratories*

Nov 2025 - Apr 2026

- Oversee the National Reference Centers (NRCs) to ensure the quality and efficiency of diagnostic and reference services.
- Implement systems for monitoring diseases (infectious, chronic, and vector-borne), including early detection of outbreaks and public health emergencies.
- Provide high-complexity diagnostic services and validate methodologies across the national laboratory network.
- Conduct research, innovation, and technology transfer initiatives to strengthen public health, including work on insecticide and pathogen resistance.
- Implement and maintain quality management systems (ISO) to ensure the reliability and timeliness of results.
- Coordinate with the Ministry of Public Health (MSP) and other institutions to align laboratory actions with national health policies and strategies.
- Train human resources and assess the technical competency of personnel across the network.
- Ensure that procedures and protocols comply with national and international standards.

### **University of Notre Dame**

Notre Dame, IN

*Postdoctoral Researcher, Department of Biological Sciences*

Jun 2024 – May 2025

- Detected and isolated HCMV monoclonal antibodies from seropositive patients using flow cytometry and PCR.
- Developed monoclonal antibody therapies targeting HCMV for use in immunocompromised patients.
- Standardized and optimized cell culture, PCR, and Western blot techniques to support HCMV research and antibody production, and other immunoassays.
- Mice immunization as part of the development of a vaccine for HCMV

**University of Notre Dame**  
Graduate Research Assistant, Department of Biological Sciences

Notre Dame, IN  
Jun 2019 – May 2024

- Detection of *Plasmodium falciparum* that carries the deletion of the *hrp2* gene and *hrp3* gene through molecular tools like digital PCR (dPCR) in America and Africa.
- Comparison of molecular *hrp2* and *hrp3* detection methods. Three PCR variations (nested PCR, quantitative PCR, and digital PCR) were compared to determine which one was the best.
- Standardization of several protocols in many digital PCR platforms. As a result, I developed a protocol that takes less than an hour to detect the deletion of *hrp2* and *hrp3* that can be used in the field.
- Standardization and testing of the new digital PCR platform LOAA (OPTOLANE) as part of the prototype try to validate the dPCR Platform LOAA.
- Validation of the electronica microscopy (Noul) in Ethiopia.
- Trained international research personnel and students on-site at the Armauer Hansen Research Institute in Addis Ababa, Ethiopia.

**University of Notre Dame**  
Teaching Assistant, Department of Biological Sciences

Notre Dame, IN  
Aug 2019 – May 2024

- Assisted in multiple undergraduate biology courses, including Research Experience in Biology, Biology II: Molecules to Ecosystems, Intro Biology M2E, and Biological Investigation Laboratory.
- Guided students through authentic research projects on topics such as antibiotic resistance, transcriptomics, and protein-protein interactions in *M. Tuberculosis*.
- Taught and supervised lab activities involving molecular biology, microbiology, PCR, electrophoresis, bacterial transformation, microscopy, and fieldwork.
- Contributed to curriculum development, including building a database of exam questions for core biology lectures.
- Courses taught ranged from 22 to 74 students per semester, consistently earning high student evaluation scores (4.5 to 4.9 out of 5.0).
- Emphasized student development skills in experimental design, data analysis, and scientific communication.

**PUCE / Center for Research on Health in Latin America**  
Research Assistant, Department of Biological Sciences

Quito, Ecuador  
Dec 2015 – May 2019

- Molecular characterization of *P. falciparum* population in Ecuador using neutral microsatellites located in 6 chromosomes of the parasite.
- Organization and conduction of cohorts in Ecuador. The goal of the cohort was to collect all the information on the malaria endemic areas and the collection of samples for the posterior analysis and determination of Plasmodium sp., molecular characterization with neutral microsatellites, and *hrp2* status determination.
- Laboratory functioning by managing budgets, allocating resources, and maintaining accurate records. Supervise and train personnel and students in molecular techniques. I was in charge of equipment maintenance and inventory management. In addition, I contribute to project management and research support through technical expertise and data management.

**Pontificia Universidad Católica del Ecuador**  
Teaching Assistant, Department of Biological Sciences

Quito, Ecuador  
Jan 2017 – May 2019

- Microbiology course for undergraduate students. The course objective was to provide students with a comprehensive understanding of microorganisms, their roles in various ecosystems, and their significance in human health, industry, and the environment. Through theoretical knowledge and hands-on practical experience, students learned about microbial diversity, classification, structure, and physiology. Additionally, students developed skills in laboratory techniques for isolating, culturing, and analyzing microorganisms.

**PUCE / Center for Research on Health in Latin America**  
Undergraduate Research Assistant, Department of Biological Sciences

Quito, Ecuador  
May 2010 – Dec 2015

- Molecular characterization of *P. falciparum* population in Northwest Ecuador using neutral microsatellites located in 6 chromosomes of the parasite. Ecuadorian *P. falciparum* circulated in Northwest Ecuador was

almost identical to parasites circulating the Pacific Coast of Peru in 2000 and to an ancestral *P. falciparum* sample collected in the Ecuadorian Coast in 1990. Additionally, no *hrp2/3* deletion was found.

### **Education:**

- Doctorate (Ph.D.), Molecular Biology and Epidemiology. Dissertation: Malaria diagnosis with a focus on *hrp2* and *hrp3* deletion. University of Notre Dame, Notre Dame, Indiana. May 2024
- Bachelor of Science (B.S.), Biology, Dissertation: Caracterización poblacional de *Plasmodium falciparum* en Ecuador, Pontificia Universidad Católica del Ecuador, Quito, Ecuador. 2015

### **Leadership & Service:**

- **Science, Technology, Engineering, and Mathematics (STEM) Mentorship, Student Leadership Mentor** Jan 2022 – Present  
Mentored three female undergraduate students in the Biology department through 1-1 consultations, career exploration events, graduate school applications, and outreach activities. 100% achieved research opportunities.
- **National Research Committee on Infectious Diseases (CONIEIT), Member** May 2016 – Present  
I actively contributed to the development of protocols for the detection and management of infectious diseases. Additionally, I played a pivotal role in ongoing research and testing, exploring innovative protocols to enhance our approach.
- **Scientific committee for the development of malaria diagnosis protocol in Ecuador, Member** Feb 2016 – Oct 2018  
Implementation of molecular diagnosis as part of the Ecuadorian malaria diagnosis plan.  
Characterization of the malaria drug resistance profiles present in Ecuador.  
Molecular characterization of *Plasmodium falciparum* parasites circulating in the country

### **Languages:**

English      Level: Fluent                      Spanish      Level: Native

### **Honors & Awards:**

- 2021 Co-chair in the Challenges in Malaria Diagnosis session of the 2021 ASTMH meeting
- 2018 Fogarty/NIH Scholarship, School of Public Health, School of Medicine, University of Chile, Santiago - Chile