

# Erika Samary Pinto Nogales

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## EDUCATION

Master's degree in Biological Analysis and Laboratory Diagnosis April 2021–March 2022  
Universidad Técnica Particular de Loja

Research paper: "Zebrafish (*Danio reiro*) as a biological model for the study of drugs of abuse"

Bachelor's degree in Biological Sciences September 2015–May 2020  
Pontificia Universidad Católica del Ecuador

Undergraduate thesis: "Cellular regeneration patterns and comparison in aquatic planarians from Ecuadorian montane forest and paramo"

## PROFESSIONAL EXPERIENCE

Research Technician February 2023–July 2023  
Developmental Biology Laboratory- Pontificia Universidad Católica del Ecuador

Advisor: Dr. Andrés Romero Carvajal.

- Supervised and mentored current students on image processing and data visualization for undergraduate research projects using zebrafish, planarians and amphibians.
- Developed scripts in R software for data analysis from fin regeneration and heart regeneration assays in zebrafish.
- In a team, revised, tested and wrote detailed protocols to be implemented in hands-on lectures about cleavage, gastrulation and neural crest differentiation.

Publication:

Arévalo Cuaical, A., Villaverde, E. M., Zurita-Paredes, D., Pinto-Nogales, E. S., Bautista, G., Calero, J., ... & Romero-Carvajal, A. (2024). Whole-Mount Histochemical Protocols in Zebrafish for a Hands-On Developmental Biology Practical Course in Ecuador. *Zebrafish*, 21(2), 119-127.

Research Technician July 2022–December 2022  
Bazzini Lab- The Stowers Institute for Medical Research

Advisor: Dr. Ariel A. Bazzini

Project: "Codon optimality in zebrafish"

- Performed CRISPR-Cas13d mediated knockdown to investigate codon optimality in zebrafish.
- Measured mRNA expression level using qPCR to validate knockdown.
- Analyzed images with FIJI to match zebrafish embryonic stages and quantify phenotypes.
- Visualized and analyzed data with R and prepared figures using Adobe Illustrator to present digested data during weekly meetings.

Summer Scholar

June 2022–July 2022

Bazzini Lab- Stowers Summer Scholars 2022- The Stowers Institute for Medical Research

Advisors: Dr. Ariel A. Bazzini and Predoctoral Researcher Gabriel da Silva Pescador

Project: “Role of protein degradation in the maternal to zygotic transition of zebrafish”

- Was introduced to CRISPR-Cas13d mediated knockdown in zebrafish to interfere with autophagy and assess the role of protein degradation.
- Measured mRNA expression level using qPCR to validate knockdown.
- Analyzed images with FIJI to track zebrafish embryo development to identify and quantify observed phenotypes.
- Visualized and analyzed data with R and prepared figures using Adobe Illustrator to present the findings of this investigation with a poster at the Summer Scholars Poster Session 2022 and the Crossroads Conference 2022 at The Stowers Institute for Medical Research.

Research Technician

June 2021–July 2022

Developmental Biology Laboratory- Pontificia Universidad Católica del Ecuador Advisor:

Dr. Andrés Romero Carvajal.

Project: “Development of cellular essays and a drug screening platform in zebrafish to discover compounds of medical importance”

- Led to the introduction of zebrafish as an animal model in the lab with other members of the lab. This included the standardization of the whole maintenance process of the model and resulted in the most intensive zebrafish aquarium for research in Ecuador.
- As a team, we developed a booklet of standardized protocols in Spanish (to be published) describing the techniques for feeding, breeding, and maintaining zebrafish for Ecuadorian researchers with low resources interested in introducing zebrafish in their lab.
- Performed caudal fin amputations in zebrafish larvae to standardize a regeneration assay that is now used to test the effect of mining toxins on regeneration.
- Standardized alkaline phosphatase staining to further evaluate the effect of different toxins and molecules over the lateral line regeneration.

Technician

November 2020–May 2021

Supervisor: Dr. Luis Pinto (DVM).

Sertagro (Veterinary Services)

Project: “Bovine brucellosis control in dairy cattle”

- Created an online and updated database that allowed the vet in charge to track the health status of all the cattle from different clients, allowing us to notify them effectively.
- Performed Brucellosis tests in blood samples to identify and isolate sick cattle that could affect the health of other individuals.
- Organized material in the field and the lab to ensure effective sampling of cattle blood followed by accurate transportation and storage.

Research Technician

February 2019–April 2021

Developmental Biology Laboratory- Pontificia Universidad Católica del Ecuador Advisor:

Dr. Andrés Romero Carvajal.

Project: "Tissue regeneration strategies and genetic diversity in aquatic and terrestrial planarians of Ecuador" (bachelor's Thesis)

- Introduced planarian colonies from the highland ecosystem from Ecuador (highlands) to the lab and established feeding and maintenance protocols.
- Standardized protocols for phosphor-histone H3 immunostaining in planarians from the highlands, allowing the study of cell proliferation post amputation.
- Processed and compared data about regeneration capacity and cell proliferation using FIJI and R.
- Performed phylogenetic analyses to characterize new planarian species from the Ecuadorian Andes.

Research Technician

July 2017–May 2019

Evolutionary Genetics Laboratory- Pontificia Universidad Católica del Ecuador.

Project: "Drosophila genitalia dissection for evolutionary analysis" Advisors: Dr.

Violeta Rafael and Dr. Doris Vela.

- Responsible for genitalia dissection and in charge of different Drosophila species maintenance in the lab.
- In a collaborative effort with other members of the lab, investigated the evolution of this genus in the Andes mountains.

Technician

October 2016–June 2017

Zoology Museum "QCAZ" (herpetology area)- Pontificia Universidad Católica del Ecuador.

Advisors: Dr. Omar Torres Carvajal and Dr. Santiago Ron.

Project: "Administration and management of biological collections"

- Responsible for the preparation, fixation, organization, identification and labeling of amphibian and reptile species to assist biodiversity researchers.

## **SCHOLARSHIPS AND GRANTS**

Opportunity Funds Scholarship

June 2022-June 2023

Education USA in Ecuador

- Won a funding opportunity to cover graduate applications fees and reallocation in the USA.

Stowers Summer Scholars

June 2022–July 2022

The Stowers Institute for Medical Research

- Bazzini lab: Post-transcriptional Gene Regulation, Vertebrate Gene Regulation.

Research Grant Fellowship PUCE QINV0189 IINV529010100

February 2019–April 2021

Pontificia Universidad Católica del Ecuador

- Development Biology Laboratory: "Strategies for tissue regeneration and genetic diversity in aquatic and terrestrial planarians of Ecuador".

## Trainee Scholarships

Pontificia Universidad Católica del Ecuador:

- Laboratory of Evolutionary Genetics: "The genus *Drosophila* in genetic experiments"  
First and second academic semester, 2018
- Laboratory of Evolutionary Genetics: "The genus *Drosophila* in genetic experiments"  
First and second academic semester, 2017
- Museum of Zoology "QCAZ"- herpetology area: "Administration and management of biological collections".  
First academic semester, 2016

## CONFERENCES AND SEMINARS

Poster Presentations:

Crossroads Research Conference 2022 September 9, 2022

The Stowers Institute for Medical Research, Kansas City.

Poster title: "What happens if we inhibit protein degradation during the maternal to Zygotic Transition?"

The Stowers Summer Scholars poster presentations July 29, 2022

The Stowers Institute for Medical Research, Kansas City.

Poster title: "What happens if we inhibit protein degradation during the maternal to Zygotic Transition?"

Research talk:

First Science Symposium: "Del Laboratorio a la Divulgación" September 4, 2021

Pontificia Universidad Católica del Ecuador, Quito-Ecuador.

Talk title: "Regeneration in planarians from the Ecuadorian Paramo"

Conferences attended:

Society for Developmental Biology 79th Annual Meeting July 9–15, 2020

Society for Developmental Biology.

Second International Beekeeping Tour Latin America 2019 June 20–22, 2019

Organized by the Pichincha Beekeepers Association- ADAPI

XLII National Conference on Biology November 22–24, 2018

Organized by the Ecuadorian Society of Biology, Núcleo Santa Elena

Dynamics and Phylogeny of Amazonian Trees May 18, 2016

Organized by the QCA Herbarium and the School of Biological Sciences

## COURSES AND CERTIFICATES

EMBO Practical Course-Developmental Biology (Quintay-Chile) January 4-16, 2023

European Molecular Organization(EMBO)

- Theoretical-practical certificate program

Certificate of approval in Adobe Photoshop July 5–9, 2020

Ministry of Labor of Ecuador

- Online certificate program

Basic techniques of molecular biology and introduction to synthetic biology February 15–16, 2020  
 Technical Secretariat of the National System of Professional Qualifications. BioSin-Biociencias.

- Theoretical-practical certificate program

Animation Course using Gif Movie Gear July 17, 2010  
 “Sebastián de Benalcázar” Municipal High School

- Theoretical-practical certificate program

Certificate of Occupational Training in English March 2004–August 2009  
 Ministry of Education of Ecuador at the Cambridge Occupational Center

- Certificate of Occupational Training

Computational course in the management of Windows Explorer, Internet Explorer, Windows Movie  
 Maker and PowerPoint 2007 July 15, 2009  
 “Sebastián de Benalcázar” Municipal High School

- Theoretical-practical certificate program

### OUTREACH ACTIVITIES

Member of the School of Biological Sciences Association January 2018–January 2019  
 Pontificia Universidad Católica del Ecuador

- Organized the renovation of a comfortable, inclusive space for biological sciences students to study, relax and share experiences.
- Led fundraising efforts through cultural events to support student field trips and conference attendance.
- Engaged with students at all levels to understand their needs and relay them to academic coordinators.

Scientific divulgation talks about ocean conservation August 2019  
 “Yaku” Water Museum Park

- Delivered a presentation at a national museum using audiovisuals and a play to raise awareness about ocean pollution and waste reduction.

Scientific communication talks about bat conservation September 2019  
 Different schools in Quito-Ecuador

- Gave a talk using audiovisuals and games to teach children (ages 8-13) about the ecological importance of bats and to dispel fears about them.

### LANGUAGES

TOEFL ibt scores: Reading 25, Listening 26, Speaking 25, Writing 23

Spanish: Native

French: B1