Paloma Zarazua
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Portfolio: https://zarazuapaloma.github.io/Zarazua/

EDUCATION

M.S. Biology. California State Polytechnic University, Pomona **Aug 2023- Dec 2025**
Thesis: Investigating effects on neutrophil-like cells (NLCs) by newly developed metals
Advisor: Dr. Alas
B.S. Biology, University of La Verne, La Verne **Aug 2019- Dec 2022**

RESEARCH EXPERIENCE

Master's Research, California State Polytechnic University, Pomona **Aug 2023 – Dec 2025**
PI: Dr. Alas, Biological Sciences Department
Investigating effects on neutrophil-like cells (NLCs) by newly developed metals and their osteolytic properties.
Designed and conducted experiments examining neutrophil-like cell (NLC) responses to experimental metal alloys and their potential osteolytic mechanisms. Developed and optimized cytokine assay and flow cytometry protocols with minimal supervision, employing statistical analysis tools (R) and FlowJo for data analysis. Differentiated HL-60 cells into neutrophil-like cells, macrophage-like cells, and osteoclast-like cells to model innate immune responses to biomaterials

Research Assistant, California State Polytechnic University, Pomona **Nov 2025- Present**

Dr. Mercer's Laboratory, Biological Sciences Department
Performed venipuncture on human research participants under IRB-approved protocols. Processed human samples and isolated primary neutrophils for downstream immunological assays. Supported studies investigating neutrophil biology and host-pathogen interactions involving Trichomonas vaginalis. Maintained compliance with biosafety and human subjects research requirements.

RESEARCH INTERESTS

My research interests center on how hematopoietic-derived immune cells sense and respond to foreign invaders and inflammatory cues. I aim to elucidate the molecular mechanisms by which innate immune signaling regulates inflammation and tissue remodeling, with the long-term goal of advancing strategies that promote immune balance and tissue repair.

RESEARCH MENTORING

Nathalie Sorensen (CPP Undergraduate, Aug 2023 -Dec 2023): Trained in cell culture, sterile technique, and antibody staining for flow cytometry.
Lissette Nolasco (CPP Undergraduate, Aug 2024- May 2025): Trained in cell culture, sterile technique, and microscopy.
Beatriz Jimenez (CPP Undergraduate, Sep 2025- Dec 2025) : Trained in cell culture, sterile technique, microscopy, HL-60 differentiation into NLCs and macrophage-like cells, flow cytometry and lab safety protocols.

TEACHING EXPERIENCE

Teaching Associate, Cal Poly Pomona **Aug 2023 - Dec 2025**
Delivered mini-lectures and facilitated laboratory sessions for undergraduate courses, including Life Science (BIO 1110L), Biology and Society (BIO1150L), Foundations of Biology: Evolution, Ecology,

and Biodiversity (1220L), and Human Physiology (BIO 2060L). Developed, administered, and graded weekly quizzes to assess student learning outcomes and guided students in experimental design, data collection, and analysis (including Bio-Pac Physiological monitoring systems). Additionally, oversaw classroom setup and laboratory facilitation, leading approximately 48 students through experiments and related exercises each semester.

PRESENTATIONS

Cal Poly Pomona College of Science Research Symposium **May 2025**
Poster: Neutrophil-Like Cells Response to Experimental Metal Alloys

CERTIFICATIONS & TRAINING

- Certified Phlebotomy Technician I (CDPH, active- 2027) — currently applying skills for blood sample collection in human neutrophil studies.
- CDC Laboratory Training Certificates:
  - Fundamentals of PPE in Clinical Laboratories (2025)
  - Fundamentals of Bloodborne Pathogens (2025)
  - Packing and Shipping Dangerous Goods (2025)
  - Basic Molecular Biology— Module 1: Basic Science (2025)
- CITI Program: Human Subjects Research, Animal Research (Mice), Laboratory Safety (2023-2025), Importance of Peer Review and Data Validation in Research, GDPR and Human Subject Research in the U.S.
- KGI Pre-Licensed Clinical Care and Patient Experience
- COPE Health Scholars Program Certificate

SKILLS

Laboratory Techniques:
Cell culture (HL-60 cells, neutrophil-like cell differentiation, macrophage-like cells and osteoclast differentiation), Flow Cytometry (Data interpretation and QC), Microscopy, calibration of analytical instruments, laboratory management, equipment maintenance, and sterile technique, Venipuncture
Data Analysis and Software:
Statistical analysis (R: tidy verse, dplyer), Bio-pac Software (physiological data analysis), GitHub portfolio (https://zarazuapaloma.github.io/Zarazua/), Microsoft Office and Google Workspace proficiency, FlowJo Analysis (flow cytometry data analysis)
Research and Teaching:
Experimental design and troubleshooting, scientific writing (SOPs, research documentation), Oral and written communication (presentations and lectures), curriculum and assessment design.

LANGUAGES

Spanish (fluent)
English (fluent)

ADDITIONAL EXPERIENCE

Patient Representative **Sept 2021- Oct 2022**
COPE Health Solutions- University of Texas Rio Grande
- Supported patient services and scheduling.

Health Scholar **Mar 2021- May 2022**
COPE Health Scholars- Emanate Health
- Assisted clinical staff and laboratory operations.