Rodolfo Padilla

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Biology B.S. with a minor in Chemistry, bringing hands-on expertise in microbiology and molecular biology techniques such as PCR/qPCR, aseptic technique, and advanced microscopy. Experienced in assay design, data analysis, and GMP-regulated laboratory practices, complemented by developing custom bioinformatics tools to support research. Driven to advance innovative therapeutics for cancer and infectious diseases.

Research & Laboratory Experience

Projects & Portfolio - [Remote] @ (**https://portfolio-site-pi-vert.vercel.app/**)

- In-progress site showcasing my research, projects, and scientific tools I've developed. Including web apps for bioinformatics, lab management, and full-stack development.

  - **Marker Finder**: a web-app I developed to automate biomarker discovery and primer design for gene expression datasets.
  - **Lab Inventory**: a web-app I developed for managing laboratory inventory with low-stock alerts, expiry tracking, and reorder management.

Laboratory Assistant - [University of Oregon, Roy Lab]

- Supported a large-scale fungal biodiversity project (CLIMUSH) examining macrofungi response to fire, climate, and plant community structure across NEON/LTER sites.
- Performed sample preparation, microscopy, and aseptic handling of biological material within GMP-aligned workflows and clean laboratory practices.
- Prepared media and reagents according to standardized protocols and maintained equipment calibration to ensure reproducibility and compliance with safety standards.
- Curated ecological datasets and prepared publication-ready figures in R & Python.

Independent Research Proposal - [University of Oregon]

- Designed experimental protocols to investigate Sca4/Sca2-mediated disruption of vinculin and actin remodeling in endothelial cells.
- Integrated literature on host-pathogen interactions with proposed assays (PCR, immunofluorescence, cytoskeletal analysis).
- Developed a structured research plan demonstrating skills in protocol development, assay design, and critical analysis.

Vector-Borne Disease Modeling - [University of Oregon]

- Developed stage-structured ODE models in R/deSolve to explore *Ixodes scapularis* dynamics under seasonal temperature and host density for Montgomery County, MD.
- Identified host density thresholds driving tick infection amplification, with implications for public health surveillance and vector management.

Internet Marketing Manager - [Potomac Holistics, Rockville, MD]

- Led marketing initiatives and managed personalized communications.
- Oversaw website maintenance and integration with POS (Point of Sale) system.

Software Developer - [New Frontier Data, Washington, DC]

- Collaborated with a team of developers on software solutions.
- Enhanced problem-solving skills and technical proficiency.

Data Collector - [Retail Data, LLC, Germantown, MD]

- Conducted in-store audits to gather accurate pricing data.

Education

University of Oregon - Eugene, OR

Bachelor of Science in Biology, Minor in Chemistry (2022-2025)

- **Relevant Coursework:** Biochemistry, Molecular Genetics, Organic Chemistry, Cell Biology, Bacterial-Host Interactions, Microbiology, Evolutionary Ecology, Ecology Field Methods

Montgomery College - Rockville, MD | (2020-2021)

Associate of Science in Biology

Skills

- **Laboratory Techniques**
  - Aseptic techniques (BSL-2), Bacterial culture (liquid and solid media)
  - Experience with GMP-aligned workflows and cleanroom practices
  - Calibration and maintenance of laboratory equipment with documentation aligned to cGMP guidelines
  - Media/reagent preparation
  - Microscopy
  - sample purification
  - PCR/qPCR, ddPCR, Gel electrophoresis
  - HPLC, FPLC
  - Flow Cytometry
  - LIMS

- **Data Analysis**
  - GLP and cGMP-compliant record keeping
  - Lab safety & waste disposal (biological and chemical)
  - Glassware cleaning and inventory management
  - R, Python
  - Github
  - Reproducible analysis pipelines
  - Data visualization and statistical interpretation
- **Professional Strengths**
  - Capacity to identify and address challenges encountered during experiments
  - Fluent in English and Spanish
  - Highly collaborative, detail-oriented
  - Clear and effective communication of experimental procedures and results
  - Strong written communication and experience in hypothesis-driven project design