



TITLE	POST-DOCTORAL position in Butterfly Evolutionary Developmental Biology: Omics, Computational Science, and AI		
TYPE OF CONTRACT	Special Appointment		
BASIC SALARY	\$50K – \$65K annually	TYPE OF WORK	FULL TIME (37.5 hrs./week)
DATE OF PUBLICATION	March 10, 2025	APPLICATION PERIOD	April 30, 2025
STARTING DATE	June, 2025		
WHO QUALIFIES TO APPLY: ALL CANDIDATES THAT REUNITE ALL SPECIAL REQUISITES FOR THE POSITION			

JOB DESCRIPTION

This is a unique opportunity to join a large team and international network of scientists to work on a multi-year project that embraces the most important questions in development and evolution utilizing state of the art technologies. We are seeking a highly motivated Post-Doctoral Fellows to join our research team focusing on developmental evolutionary questions. We are recruiting 4 post-doctoral fellows. We use butterflies as a study system and omics, computational biology and AI as tools to determine fundamental molecular rules in the making of life.

Project Team

The team Principal Investigator, Riccardo Papa, is an expert in genomics, evolution, and development. The project is composed by a large team of researchers with diverse skills that will enrich the learning capability of the applicants and future job opportunities. Our team is composed of biologists, chemists, computer scientists, chemical engineers, educators, and finance advisors. Our team members are experts in the fields of evolution, genomics, functional genetics, epigenetics, proteomics, metabolomics, computer science, chemical engineer, social sciences and business. We also have partners from the private, non-profit and entrepreneur sectors. Finally, we have a large network of national (USA) and international collaborators that will participate in the development of this project and will represent an added value for personal growth.

Professional development

This proposal will offer an opportunity for professional development with activities and workshops that cover omics data generation, computational data analysis, AI, entrepreneurship and science communication. All together these workshops will provide a stronger foundation for mentoring and greater opportunity for personal growth and future job applications.

Project Description:

This project aims to develop transformative science in Puerto Rico by tackling a fundamental problem of developmental biology and evolution, using two butterfly model systems. The project will integrate a diverse set of omics, developmental, and artificial intelligence (AI) techniques to illuminate the genome-to-phenome pathway of a complex trait at a cellular level. The project aspires to create a detailed map of molecular processes for evolutionary comparisons. It brings together a multidisciplinary team of researchers spread across seven academic institutions within the University of Puerto Rico system and international collaborators. The project will address a scientifically important topic: the mechanistic underpinnings that instruct cells to undergo fates and acquire diverse functions to build homologous tissues, organs, and traits over the course of development and evolution. The project's ambition is to

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decode the genomic architecture and molecular logic of the differentiation and function of cells and organs during the entire developmental trajectory of an organism. The proposed research involves four Aims, including understanding the constraints and freedoms in organismal development (genomics focus), deciphering the molecular toolkit for building a butterfly (molecular architecture focus), understanding a butterfly wing's cell differentiation and the development of wing scales with unique colors (cellular fate focus), and building cyberinfrastructure to find patterns across omics data (focus on scalability, data integration, and artificial intelligence (AI) predictability).

- Link to NSF award:
https://www.nsf.gov/awardsearch/showAward?AWD_ID=2435987&HistoricalAwards=false
- Principal Investigator Google Scholar profile:
<https://scholar.google.com/citations?user=Ah6IS28AAAAJ&hl=en>

Position Overview:

We are looking for an enthusiastic, highly motivated, and skilled researcher to contribute to our ongoing studies on butterfly evolution and development. The ideal candidate will demonstrate a strong desire to grow both professionally and scientifically. This position offers an excellent opportunity for a passionate scientist to work on cutting-edge projects investigating the molecular mechanisms underlying butterfly organismal development and evolution. We seek individuals who are not only technically proficient but also bring energy, curiosity, ambition, and a commitment to advancing their expertise in the field. By joining our team, you'll not only advance your career in a stimulating academic environment but also enjoy the unparalleled lifestyle and natural beauty that Puerto Rico offers.

Responsibilities:

- Design and conduct experiments related to development and evolutionary questions in butterflies
- Analyze complex omics datasets
- Maintain big data repositories
- Develop computational pipelines
- Develop and apply bioinformatics tools for data analysis
- Prepare manuscripts for publication in peer-reviewed journals
- Present research findings at conferences and seminars
- Mentor graduate and undergraduate students
- Assist in grant writing and project management

Qualifications:

- Ph.D. in Genetics, Developmental Biology, Genomics, Bioinformatics, Computational Science or a related field
- Strong background in computational science and molecular biology techniques
- Proficiency in bioinformatics and data analysis (e.g., R, Python, Unix/Linux)
- Experience with next-generation sequencing data analysis
- Excellent written and verbal communication skills
- Ability to work independently and as part of a collaborative team
- Publication record in peer-reviewed journals

Preferred Qualifications:

- Knowledge in computational science
- Genomics data analyses
- Familiarity with evolutionary developmental biology concepts
- Knowledge of CRISPR/Cas9 or other genome editing techniques

Salary basic information:

We are offering a highly competitive Postdoctoral salary (from \$50K to 65K with full benefits) that will match the candidate's qualifications.

To Apply:

Please submit the following documents:

1. Cover letter describing your research interests and experience
2. Curriculum vitae
3. Two representative publications
4. Contact information for three references


Review of applications will begin immediately and continue until the position is filled.

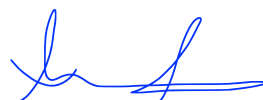
Selection of candidates for this first round of hiring will close by April 30, 2025 for follow up interviews. Exceptions can be made for particular cases of extremely motivated and qualified applicants.


All documents must be submitted to the following electronic address before or by **April 30, 2025**

Attention to : **Dr. Riccardo Papa**, Department of Biology
Subject : **Application – The Blueprint of Life**
e-mail : riccardo.papa@upr.edu and rpapa.lab@gmail.com

APPROVED BY:


Dr. Mirerza González Vélez, Dean
Deanship for Academic Affairs


Dr. Carlos J. Corrada Bravo, Dean
Faculty of Natural Science


José Agosto-Rivera (Feb 28, 2025 08:22 AST)
Dr. José Agosto, Director
Department of Biology