Javier Carpinteyro-Ponce

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Summary

A results-driven biologist with a PhD in Biological Sciences and over 10 years of experience in high-throughput data analysis. Skilled in RNA-seq, single cell, spatial transcriptomics, microbial profiling, and comparative genomics. Extensive experience building reproducible workflows (Nextflow, R, Bash), integrating diverse datasets, and collaborating on cloud/HPC platforms. Adept at communicating with interdisciplinary teams and contributing to publications and data infrastructure.

Key Skills and Tools

- NGS: Bulk RNA-seq, scRNA-seq, ATAC-seq, WGS, amplicon sequencing
- Integration: Comparative genomics, microbial profiling, phenotypic association
- Programming: R, Python (basic), Bash, Perl
- Pipelines: Nextflow, nf-core
- Data Platforms: AnVIL (cloud computing), HPC, UNIX, Linux
- Version control on GitHub.
- Visualization: ggplot2, gene co-expression networks
- Documentation development with Markdown and Quarto.

Research Experience

- Lead of pre-processing and primary analysis across sequencing platforms: Illumina, Nanopore, PacBio, 10x Genomics, Curio **(Carnegie Science)**
- Development of scalable and reproducible pipelines with Nextflow **(Carnegie Science)**
- Delivery of workshops (Carpentries & Bioconductor) for training researchers on computational tools for data analysis **(Carnegie Science)**
- User support and troubleshooting on cloud computing platforms for genomic data analysis **(AnVIL)**
- R data package development for RNA sequencing data analysis lessons **(C-MOOR)**

- Integration of multi-omics data for studying the species divergence in Drosophila **(UMD)**
- Deployment and development of computational workflows for genome assembly, genome annotations, variant calling, and gene expression **(UMD)**
- Structural variation analysis for the study of genome evolution in Drosophila species **(UMD)**
- Population genomics with single nucleotide polymorphisms for the study of introgression barriers during the species divergence in Drosophila **(UMD)**
- Gene co-expression network analysis for the study of gene expression divergence in Drosophila **(UMD)**
- Study of microbial communities associated with drosophila species using amplicon sequencing data **(CINVESTAV)**

Education

2013 BS. Biology; Benemerita Universidad Autonoma de Puebla, Puebla, Mexico.
Dissertation: "Evolutionary Genomics of Wolbachia sp."
Dissertation advisor: Dr. Luis Jose Delaye Arredondo (CINVESTAV-Irapuato).

2015 MS. Plant Biotechnology; Unidad de Genomica Avanzada, CINVESTAV, Irapuato Mexico.
Dissertation: "Bacterial diversity associated with two populations of Drosophila Nigrospiracula."
Dissertation co-advisors: Dr. Therese Ann Markow (Unidad de Genomica Avanzada), Dr. Nancy Ann Moran (UT-Austin).

2023 PhD. Biological Sciences; University of Maryland, College Park, MD, USA.
Dissertation: "The genomics of species divergence in Drosophila."
Dissertation advisor: Dr. Carlos A. Machado

Employment

2023 Bioinformatics Research Associate, Biosphere Sciences and Engineering, **Carnegie Science**
The Department of Embryology at the Carnegie Institution of Washington is a world-renowned research center dedicated to understanding the molecular and cellular mechanisms of embryonic development, stem cell biology, and reproductive biology. (https://carnegiescience.edu/bse)

2023 Developer, **C-MOOR** (Carnegie Massive Open Online Research)
C-MOOR strives to break down barriers to scientific participation by providing online access to real scientific data, analytical tools, mentorship, and opportunities to interact with real scientists. (https://science.c-moor.org/)

2024 **Outreach Associate**, **AnVIL** (NHGRI Analysis Visualization and Informatics Lab-space)
The NHGRI Genomic Data Science Analysis, Visualization, and Informatics Lab-Space, or AnVIL, inverts the traditional model, providing a cloud environment for the analysis of large genomic and related datasets. (https://anvilproject.org/)

Awards and Honors

- **International academic exchange fellowship (2010):** Benemerita Universidad Autonoma de Puebla (Mexico) and Centro Nacional de Biotecnologia - CSIC (Spain).
- **Master 's national fellowship (2015-2019):** Consejo Nacional de Ciencia y Tecnología (Mexico).
- **Doctoral foreign fellowship (2015-2019):** Consejo Nacional de Ciencia y Tecnología (Mexico).
- **COMBINE (Computation and Mathematics for Biological Networks) fellow (2017-2022):** University of Maryland - https://www.combine.umd.edu/cohort1/
- **Bioconductor Carpentries Training Program fellow (2023):** Bioconductor teaching community - https://blog.bioconductor.org/posts/2023-02-24-carpentries-update/

Languages

- Spanish: Native speaker
- English: Professional proficiency
- Currently learning Japanese

Publications

Google Scholar: https://scholar.google.com/citations?user=kqba_HwAAAAJ&hl=en
ORCID: 0009-0005-2865-1475

*Carpinteyro-Ponce, Javier, and Carlos A. Machado. 2024. "T**he Complex Landscape of Structural Divergence Between the Drosophila Pseudoobscura and D. Persimilis Genomes.**" *Genome Biology and Evolution* 16 (3). https://doi.org/10.1093/gbe/evae047.

Markow, Therese Ann, Giovanni Hanna, Juan R. Riesgo-Escovar, Aldo A. Tellez-Garcia, Maxi Polihronakis Richmond, Nestor O. Nazario-Yepiz, Mariana Ramírez Loustalot Laclette, **Javier Carpinteyro-Ponce**, and Edward Pfeiler. 2014. "**Population Genetics and Recent Colonization History of the Invasive Drosophilid Zaprionus Indianus in Mexico and Central America.**" *Biological Invasions* 16 (11): 2427–34.

*Martinson, Vincent G., **Javier Carpinteyro-Ponce**, Nancy A. Moran, and Therese A. Markow. 2017. "**A Distinctive and Host-Restricted Gut Microbiota in Populations of a Cactophilic Drosophila Species.**" *Applied and Environmental Microbiology* 83 (23). https://doi.org/10.1128/aem.01551-17.

Nazario-Yepiz, Nestor O., Mariana Ramirez Loustalot-Laclette, **Javier Carpinteyro-Ponce**, Cei Abreu-Goodger, and Therese Ann Markow. 2017. "**T**ranscriptional Responses of Ecologically Diverse Drosophila Species to Larval Diets Differing in Relative Sugar and Protein Ratios**." *PloS One* 12 (8): e0183007.

Sanchez-Flores, Alejandro, Fernando Peñaloza, **Javier Carpinteyro-Ponce**, Nestor Nazario-Yepiz, Cei Abreu-Goodger, Carlos A. Machado, and Therese Ann Markow. 2016. "**Genome Evolution in Three Species of CactophilicDrosophila.**" *G3 (Bethesda, Md.)* 6 (10): 3097–3105.

* First author publications.