Raquel Montañez-González

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EDUCATION

University of Notre Dame Notre Dame, IN
Ph.D., Biological Sciences December 2020
Dissertation: *Molecular Karyotyping of chromosomal inversions in malaria vector Anopheles gambiae*
Advisor: Nora J. Besansky

Universidad de Puerto Rico, Cayey Cayey, PR
B.S., Biology May 2015

RESEARCH EXPERIENCE

University of Notre Dame Notre Dame, IN
Graduate Research Assistant, Biological Sciences August 2015 – Present

- Designed molecular karyotyping methods for widespread chromosomal inversion 2Rb in malaria vectors *Anopheles gambiae* and *Anopheles coluzzii*, resulting in 1 first author publication.
- Mentored 2 Notre Dame undergraduates over the course of 3 years. Leading to opportunities for them to write grants, receive funding and publish as co-authors.

University of Notre Dame Notre Dame, IN
Undergraduate Research Assistant, Biological Sciences May 2014 – August 2014

- Compared two populations of macaques in the islands of Bali and Singapore to understand their role, as a host, in genetic sub structuring of Blastocystis parasites. Throughout stool DNA extraction from macaques and subsequent Polymerase Chain Reaction (PCR) and gel electrophoresis I was able to develop phylogenetic trees.
- Assembled and presented orally the proposal for this project. This led to the final design of poster that was presented at several conferences.
- Collaborated with my Research Experience for Undergraduates (REU) group to organize a science workshop for underrepresented minorities in South Bend, IN.

University of Puerto Rico, Cayey Cayey, PR
Undergraduate Research Assistant, Biology January 2013 – May 2015

- Annotated and improved regions of different Drosophila genomes provided by the Genomic Educational Partnership (GEP) combining bioinformatics and wet lab techniques, leading to co-author publication.
- Designed workshops tailored to training new students interested in the research project.

TEACHIING EXPERIENCE

University of Notre Dame Notre Dame, IN
Teaching Assistant, Biological Sciences January 2020 – May 2020

- Taught a lab composed of 27 freshman/sophomore undergraduate students into their introduction to Research Experience in Biology. The students were to analyze evolutionary responses of salt marshes to global environmental change. It resulted in teaching laboratory techniques (DNA extraction, PCR, restriction digest and gel electrophoresis), data gathering, statistical analysis and writing a research paper.
- Adjusted semester goals to fit an online teaching system.

University of Notre Dame Notre Dame, IN
Teaching Assistant, Biological Sciences January 2018 – May 2018
January 2017 – May 2017

- Taught sophomore undergraduate students an introductory biology laboratory. Subjects covered were histology, anatomy and managing small research projects centered around salt marshes response to environmental change. It concluded in the students presenting their findings via poster presentations.

HONORS & AWARDS

Outstanding Graduate Teaching Assistant Award 2018

GRANTS & FELLOWSHIPS

Kinesis-Fernandez Richards Family Endowed Fellowship 2015 – 2020

SKILLS

Animal Care: Mosquito insectary maintenance.
Vector Biology: microinjections of mosquito adults and pupae.
Molecular Biology: DNA extraction, primer design, PCR, RFLP, gel electrophoresis, qRT-PCR, ddPCR, dsRNA synthesis, RNA extraction, CRISPR.
Computer skills: Microsoft Office, gene alignment and genetic analysis, BLAST.

LEADERSHIP & OUTREACH

Paradigm Shift Notre Dame, IN
Mentor& Director May 2016 - October 2019

- Established and maintained community partnerships with youth outreach programs to recruit diverse students ages 11-18 in bilingual settings.
- Recruited and mentored groups of graduate students to serve as workshop and team leaders.
- Developed a budget and gained internal funding for the program: food, materials, shirts, final showcase presentations.
- Mentored underrepresented minorities in the community by guiding the students to create a learning tool based in STEM.

Expanding Your Horizon Notre Dame, IN
Mentor April 2019

- Designed and led a DNA extraction one day workshop for middle school girls.

Northern Indiana Regional Science and Engineering Fair Notre Dame, IN
Science Fair Judge March 2017

- Assigned with two other judges to choose winners and give written feedback to the presenters.

PUBLICATIONS

First author in: **Montanez-Gonzalez, R**., Pichler, V., Calzetta, M. et al. Highly specific PCR-RFLP assays for karyotyping the widespread 2Rb inversion in malaria vectors of the *Anopheles gambiae* complex. Parasites Vectors 13, 16 (2020). https://doi.org/10.1186/s13071-019-3877-x

Co-autorship in: Leung W, et al. "Retrotransposons are the Major Contributors to the Expansion of the *Drosophila ananassae* Muller F Element" G3: Genes, Genomes, Genetics (2017): g3-117.

SELECTED PRESENTATIONS

"Molecular karyotyping of chromosomal inversion polymorphisms in *Anopheles gambiae*." Poster Presentation at the *SACNAS National Diversity in STEM Conference, Hawai'i Convention Center, Honolulu, HI, 2019.*

"Molecular karyotyping of chromosomal inversion polymorphisms in *Anopheles gambiae.*" Poster Presentation at the *ASTMH Annual Meeting, Gaylord National Resort and Convention Center National Harbor, National Harbor, MD, 2019*.

"Molecular karyotyping of inversion 2Rb in *Anopheles gambiae.*" Poster Presentation at the *Association of Women in Science Regional Conference, University of Notre Dame, Notre Dame, IN, 2018*

"Pathogen Diagnosis in the Zoonotic Reservoir Species, *Macaca fascicularis*". Oral Presentation at the *Graduate Seminar Biofrass (Ecology, Evolution and Environmental), University of Notre Dame, Notre Dame, IN, 2015.*

"*Macaca fascicularis* population structuring dictates distribution of genetic variation in Blastocystis across two islands in Southeast Asia". Poster Presentation at the *2014 Annual Biomedical Research Conference for Minority Students (ABRCMS), San Antonio,TX, 2014.*

"Sequence Improvement and Annotation of Genomic Regions of Drosophila Species". Oral Presentation at the *General Sciences Program and the Department of Biology Research Symposium, University of Puerto Rico at Cayey, Cayey, PR, 2013.*