Murillo Fernando Rodrigues

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Education

MS Genetics and Evolutionary Biology, University of São Paulo. 2016-present

BS Biological Sciences, University of São Paulo. 2012-2015

Research Experience

Research scholar, Pool Lab. UW - Madison. August 2017 - present

Master's student, Cogni Lab (co-advised by Prof. Vibranovski). USP. February 2016 - present

Research intern, Cogni Lab. USP. July 2015 - January 2016

Research intern, Reyda Lab. SUNY Oneonta. January 2014 - March 2014

Research intern, Marques Lab. USP. July 2013 - December 2014

Honors and Recognitions

Honorable mention for Oswaldo Frota Pessoa Prize, University of São Paulo. 2016.

Ranked 1st in the admission exam of the Genetics and Evolutionary Biology Graduate Program (Score: 9.9/10). 2016.

Ranked 2nd (of 60) in the Biological Sciences graduating class of 2015.

Funding

Research Internship Abroad, São Paulo Research Foundation. August 2017 - February 2018

Global patterns of natural variation in *Drosophila melanogaster*'s immune genes

Master Fellowship, São Paulo Research Foundation. November 2016 - July 2018

Clinal variation in immune-related genes of *Drosophila melanogaster*

Selective pressures imposed by natural enemies may vary clinally, and the strongest pressure occurs in tropical regions. This spatial structure in selective forces may lead to the evolution of clines in polymorphisms related to resistance to natural enemies. The goal of this project is to investigate, with clinal variation, contemporaneous selection in genes of the *Drosophila melanogaster* immune system. Genomic data for natural populations distributed along a broad latitudinal transect was made available by previous studies; thus, it will be possible to examine the presence of clines in immune-related genes, comparing them to control genes without immune function.

Scientific Initiation Fellowship, São Paulo Research Foundation. November 2013 - October 2014

Diversity and phylogenetic positioning of freshwater lineages of *Rhinebotrhium* Linton, 1890 (Eucestoda: RHINEBOTHRIIDEA) from lake Maracaibo and Orinoco basin, Venezuela

The study of the phylogenetic relationships is essential to understand biological phenomena from an evolutionary standpoint. Host-parasite systems can be used as biological models for the study of historical associations. Neotropical stingrays and their parasites are an interesting model system because the biogeographical history of the host, that invaded the Neotropical freshwater environment, might have impacted the evolutionary history of its parasites. One species of stingray tapeworms that infect neotropical stingrays is *Rhinebothrium*. The systematics of this genus was revised in 2011, but no specimens from the region of Lake Maracaibo and Orinoco were included, which are essential for understanding the diversification of this group. This study aims to include specimens of these regions in order to obtain a more complete picture of the composition of the genus. Nucleotide sequences of molecular markers (CO I, 28S, Calmodulin and ITS) along with morphological cohesion will be used to propose a phylogenetic hypothesis for freshwater lineages of the genus *Rhinebothrium*. The boundaries between species will be tested using the phylogenetic and morphological congruence with statistical support.

Teaching and Instruction

Teaching Assistant, Molecular Ecology, University of São Paulo. 2017.

Teaching Assistant, Evolutionary Processes, University of São Paulo. 2016.

Instructor, Introduction to Biostatistics (Semana Temática da Biologia), University of São Paulo. October 2016.

Teaching Assistant, Introduction to Statistics and Probability, University of São Paulo. 2015.

Teaching Assistant, Principles of Systematics and Biogeography, University of São Paulo. 2013 & 2014.

Conferences, Meetings and Workshops

8th Workshop on Cestode Systematics and Phylogeny, São Paulo. 2014.

General skills

Bioinformatics (R, Python, Perl and Bash)

Evolutionary Genetics

Genomics

Phylogenetics

Statistics and Data Analysis (R and Excel)

Languages

Portuguese (native)

English (fluent)

Spanish (proficient)

References

Dr. Rodrigo Cogni
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Department of Ecology, Biosciences Institute
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São Paulo, SP, Brazil
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Dr. Maria D. Vibranovski
Assistant Professor
Department of Genetics and Evolutionary Biology, Biosciences Institute
University of São Paulo
São Paulo, SP, Brazil
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Dr. Fernando P. L. Marques
Assistant Professor
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