Host-Virus Interaction using Proteomics
Director of the Translational Proteomics Center
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Cancer Immunology and Immune Phenotyping
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Mechanisms of pathogenesis of Chikungunya virus
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NeuroImmunology of HIV and Neurodegenerative Diseases
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Adjunct and Ad honorem Faculty

Pathogenesis of Dengue and Zika virus in animal models (Non-human primates) and interaction with the cellular
Pathways of innate and adaptive immunity
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Infectious Diseases
Humberto Guiot, MD; humberto.guiot@upr.edu

Molecular Parasitology and Entomology
Lab of Malaria & Vector Research
NIH/NIAID Stadtman tenure-track investigator
Joel Vega-Rodríguez, Ph.D.; joel.vega-rodriguez@nih.gov

RNA Biology; RNA Virology
Multiple sclerosis and autoimmunity
Department of Biochemistry and Molecular Biology
The University of Texas Medical Branch
Mariano A. García-Blanco, M.D., Ph.D.; maragarc@utmb.edu

COORDINATOR GRADUATE STUDIES

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UPR SCHOOL OF MEDICINE

DEPARTMENT OF **MICROBIOLOGY** AND **MEDICAL ZOOLOGY**

UPR School of Medicine
Department of Microbiology and Medical Zoology

The Department of Microbiology and Medical Zoology of the University of Puerto Rico School of Medicine is located in the third floor of the Guillermo Arbona Irizarry Building in the San Juan Medical Center. It is the only graduate program in Puerto Rico that offers both, a Master in Science (M.S.) and Doctor in Philosophy (Ph.D.) degrees in Microbiology. The Graduate Program trains students for careers in biomedical research and teaching in the disciplines of Microbiology, Medical Zoology and Immunology. Microbiologists are scientists, which investigate the virulence factors, pathophysiology, epidemiology, diagnosis, prevention and immune mechanisms of medically important pathogenic microorganisms, such as bacteria, fungi, parasites, viruses and the microbiome. Graduates from our program have successful careers in the bio-pharmaceutical industry, academia and local and federal government agencies.

The Department of Microbiology is internationally recognized by its research in the areas of Bacteriology, Parasitology, Mycology, Virology, Immunology and Microbiome. It has an outstanding and experienced faculty which actively seeks external funds to support research activities, graduate students training and state of the art facilities and equipment. Our program fosters interdisciplinary collaboration with well-recognized scientists and clinical investigators from Puerto Rico and other countries.

Program Description and Admission Requirements

Candidates for the M.S. degree are required to complete a minimum of 27 course credits and 6 thesis credits. Doctoral candidates (Ph.D.) must complete a minimum of 45 course credits, pass a qualifying exam after the second year and complete 15 thesis credits. In addition to each investigator's research laboratory, the following institutional facilities are available to expand the researcher armamentarium: the Genomics Translational Research Unit, the Translational Proteomics Center, Infectious and Global Diseases Program Core Lab, Flow Cytometry Core Lab, Electron Microscopy Unit, Campus Computer Center, the Animal Resources Center and the Caribbean Primates Center. Individual faculty members also participate as mentors in the UPR Intercampus Ph.D. Program in Biology. With these backgrounds, students are exceptionally well prepared for a variety of careers in science education, basic and clinical science research, the biomedical and biotechnology industry and various other health-related fields.

Selection and Admission of Graduate Students

Prospective graduate students may obtain an application for admission from the Division of Biomedical Sciences
www.md.rcm.upr.edu/biomed/

The Requirements for Admission are as Follows:

1. A Bachelor degree in Biology; however, applicants with majors in other related areas are strongly encouraged to apply.
2. Required undergraduate courses are: General, Analytical and Organic Chemistry, General Physics, Differential and Integral Calculus and Biology.
3. A minimum grade point average (GPA) of 3.0 in both, overall and in sciences.
4. A working knowledge of Spanish and English
5. An assay of approximately one single-spaced page setting forth the applicant's reasons for being interested in obtaining a graduate degree and following a career in Microbiology.
6. Copies of official transcript and three letters of recommendation.
7. An interview with the Department's faculty.
8. Research experience is highly recommended.
9. Completed application form.

Application deadline for admission on August is:
MARCH 1ST

Areas of Research and Faculty

MEDICAL PARASITOLOGY
Molecular and cellular mechanisms of multidrug resistance in *Plasmodium*, ABC transporters genes, role of glutathione byosyntehis genes in parasite development. Identification of drug targets and novel antimalarials active in multiple parasitic stages. Director of the Tropical and Emerging Infectious Diseases Services
Adelfa E. Serrano, Ph.D.; adelfa.serrano@upr.edu

Immunomodulatory effect of Fasciola hepatica derived antigens on antigen-presenting cells of innate immune system and application of these effects as anti-inflamatory therapy against bacterial sepsis, ulcerous colitis and other autoimmune diseases.
Ana M. Espino, Ph.D.; ana.espino1@upr.edu

MICROBIOME
Microbiome, Metagenomics, Biodiversity and Microbe-Host Relationships. Role of microbes in the development of infectious diseases, cancer and other phenotypes. Applications of Next-Generation Sequencing data, Omics and Bioinformatics.
Filipa Godoy-Vitorino, Ph.D.; filipa.godoy@upr.edu

MEDICAL MYCOLOGY
Puerto Rico Aerobiology Network for the report of pollens and fungal spores. Indoor and outdoor contaminant fungi and their effects on respiratory health. Allergenic potential of tropical fungi.
Benjamín Bolaños, Ph.D.; benjamin.bolanos@upr.edu

Medical Virology