

DEPARTMENT OF BIOCHEMISTRY

The graduate program in Biochemistry began in 1960 starting with the offering of Masters in Science (M.S.) and doctor in Philosophy (Ph.D.) degrees in Biochemistry and Nutrition. The name of the department was changed in 1992 to Department of Biochemistry. The graduates of our program can be found throughout the industrial, academic and government environment in Puerto Rico, the U.S. mainland and in Latin America. The department faculty actively seeks external funds to support our graduate students and have been able to improve our research facilities with state of the art instrumentation.

The Department of Biochemistry characterizes itself by conducting research in the following areas: Molecular and Genetic Alterations in Disease, Biochemistry of Proteins, Protein Structure/Function Relationships, Biochemistry of Glycoconjugates and Cellular Differentiation, Regulation of Gene Expression, Aging and Oxidative Stress, Development of Cancer Drugs, Clinical Biochemistry, Analytical Biochemistry, Biochemical and Molecular Toxicology, Biochemical Pharmacology and Molecular Biology. Individual faculty members also participate as mentors in the Intercampus Ph.D. program in Biology.



UPR School of Medicine

Medical Sciences Campus

PO Box 365067

San Juan PR 00936-5067

Dr. Suranganie Dharmawardhane

Coordinator of Graduate Studies

Department of Biochemistry, 6th Floor

Phone: 787-758-2525

Exts. 1623, 1601, 1602

Fax: 787-274-8724

Email: su.d@upr.edu

Biochemistry is the application of chemistry to the study of biological processes at the cellular and molecular level.

**UNIVERSITY OF PUERTO RICO
SCHOOL OF MEDICINE**



**Graduate Studies in
BIOCHEMISTRY**



Graduate Studies in BIOCHEMISTRY

PROGRAM DESCRIPTION AND ADMISSION REQUIREMENTS:

The Department of Biochemistry is located in the sixth and second floor of the University of Puerto Rico, Medical Sciences Dr. Guillermo Arbona Irizarry Building at the Río Piedras Medical Center. Available Research Facilities include the Metabolomics Research Core, the Genomics Translational Research Unit, Molecular Biology Core and the facilities of the Center for Environmental and Toxicological Research. Also available are the Translational Proteomics Center, Flow Cytometry and Electron Microscopy Units, the campus Computer Center and the Animal Laboratory Resources Center. These resources complement the facilities offered by the individual investigators in their respective laboratories.

Candidates for an M.S. degree are required to complete a minimum of 24 credits in addition to 6 thesis credits. Ph.D. candidates must complete a minimum of 45 course credits in addition to 15 dissertation credits. Ph.D. candidates must pass a qualifying exam that is taken after the second year of course work.

THE REQUIREMENTS FOR ADMISSION ARE AS FOLLOWS:

1. All applicants must fulfill the general requirements of the Graduate Division of the School of Medicine. The applicant must submit scores on the GRE General Test. Please, contact de Deanship for Biomedical Sciences regarding the deadline to apply for admission.
2. It is desirable that applicants have a B.S. degree in Chemistry or Biology, however, applicants with majors in other areas are strongly encouraged to apply.
3. Applicants must have a minimum G.P.A. of 3.0.
4. Required undergraduate courses are: General Chemistry, Analytical Chemistry, Organic Chemistry, Physics, Differential and Integral Calculus. Recommended courses include Cell Biology, Biochemistry, Genetics and Physical Chemistry.

FINANCIAL AID:

Teaching and Research Assistantships are available through the Dean of Academic Affairs. Financial aid through special programs such as NIGMS-RISE and other federal grants may also be available. Information on other financial aid is available through the Office of Financial Aid.

RESEARCH INTEREST

- Molecular and Genetic Alterations in Disease
- Biochemistry of Proteins
- Protein Structure/Function Relationships
- Glycobiology
- Genomics
- Clinical Biochemistry
- Analytical Biochemistry
- Biochemical Toxicology
- Biochemical Pharmacology
- Molecular and Cell Biology
- Proteomics
- Cancer Metastasis
- Metabolomics

THE BIOCHEMISTRY FACULTY AND THEIR RESEARCH INTERESTS:

Baerga, Abel J., Ph.D., Professor
Bacterial production of fatty acids, Pro-inflammatory bacterial genes and colon cancer

Banerjee, Dipak, Ph.D., Professor
Glycobiology in angiogenesis and breast cancer metastasis, ER stress and UPR signaling

Cadilla, Carmen L., Ph.D., Professor
Human Genetics and Genomics, Rare Disorders that affect the PR population, Regulation of gene expression

Chorna, Nataliya, Ph.D., Adjunct Professor
Microbiota-gut-brain axis in development and disease, metabolomics

Dharmawardhane, Suranganie, Ph.D., Professor
Signal transduction in cancer metastasis. Experimental Therapeutics for breast and pancreatic cancer

Jiménez, Braulio D., Ph.D., Professor
Molecular Toxicology. Effects of environmental pollutants on gene expression and asthma

León Vázquez, Ruth G., Ph.D., Assistant Professor
Molecular mechanisms of bone development and tissue repair

Rodríguez Medina, José R., Ph.D., Professor, Chairman
Stress signaling in yeast. Protein interactions of stress receptors

Rodríguez Orengo, José F., Ph.D., Professor
Biochemical and pharmacological processes of antiretroviral and anticancer drugs

Vivas Mejía, Pablo E., Ph.D., Associate Professor
Non-coding RNAs, Nanomedicine
Mechanisms of cancer drug resistance