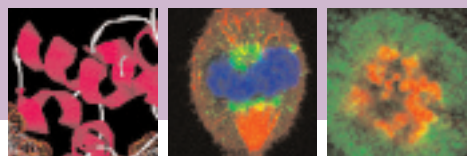


# Program in Molecular Medicine



## Cancer Biology

[cancerbiology.umaryland.edu](http://cancerbiology.umaryland.edu)

## Cell and Molecular Physiology

[physiol.umaryland.edu](http://physiol.umaryland.edu)

## Molecular Genetics, Genomics, and Bioinformatics

[genetics.umaryland.edu](http://genetics.umaryland.edu)

## Molecular Pharmacology

[pharma.umaryland.edu](http://pharma.umaryland.edu)

The Program in Molecular Medicine offers an interdisciplinary program of study and research that provides students with the knowledge, research skills, and state-of-the-art methodologies that equip them for a successful research career in the biomedical sciences. The Program in Molecular Medicine blends cancer biology, cell and molecular physiology, molecular genetics, genomics and bioinformatics, as well as molecular pharmacology into a unique interdisciplinary research and graduate training program that is ideally suited for training scientists for future biomedical research. The program faculty contains over 150 talented biomedical researchers who investigate a wide range of biological questions highly relevant to human health.

Students in the cancer biology track investigate oncogenes, tumor suppressor genes, pathways of DNA damage and repair, cell cycle regulation, growth factors, angiogenesis, and use structural biology to provide exciting new insights into the development and progression of this complex disease. Students in the cell and molecular physiology track are uncovering the causes and mechanisms of Alzheimer's disease, cardiac arrhythmias, atherosclerosis, cystic fibrosis, diabetes, heart failure, hypertension, kidney disease, infertility, osteoporosis, muscular dystrophy, and stroke. A new molecular genetics, genomics, and bioinformatics track focuses on recent advances in molecular genetic mechanisms that regulate development and the bioinformatic analysis of genomic and postgenomic data. Molecular pharmacology track students focus on molecular therapeutics with model systems that include breast, prostate, and skin cancer; chronic and acute neurodegenerative diseases; and viral and toxin-induced disorders.

During their first semester, all molecular medicine students join students from other graduate programs for "Mechanisms in Biomedical Science"—a course that offers a comprehensive overview of current knowledge in cellular, molecular, and structural biology. This modular course provides all of the background necessary for subsequent specialized studies in biomedical research and equips students with the critical thinking skills required for successful science. Following completion of this course, students begin one of three laboratory rotations. Through these rotations, students obtain hands-on laboratory experience and identify their thesis mentors. Students also begin courses specific to the interest that they wish to pursue and choose the molecular medicine track that they wish to study.

During the second semester of the second year, students prepare for qualifying exams by writing research proposals on topics of their choice, usually related to their research. They defend proposals in oral qualifying exams, which test the breadth and depth of their knowledge and their ability to integrate knowledge and apply it to research problems. Upon successful completion of the qualifying exams, students are admitted to candidacy to pursue thesis research under the direction of mentors and advisory committees. During their training, students are encouraged to present their results at national and international meetings and are strongly encouraged to publish their results in top-tier journals. Students usually complete PhD programs during the fifth year.

## Student Profiles



### Johnny Callahan

Johnny Callahan graduated from the Program in Molecular Medicine in 2005. He is currently a consultant at Anteon Corp. and a senior scientist at Tetracore, Inc. He is the author of two books, a book chapter, and 25 journal articles. He was awarded one patent and has two patents pending.

### Dawn Holt

Dawn Holt is a student in the Program in Molecular Medicine. She is a 2001 recipient of the Harriett G. Jenkins Predoctoral Fellowship Program Award and of a predoctoral fellowship administered by the United Negro College Fund Special Programs Corp. She was recently awarded a U.S. Department of Defense Breast Cancer Predoctoral Award.

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## For More Information

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