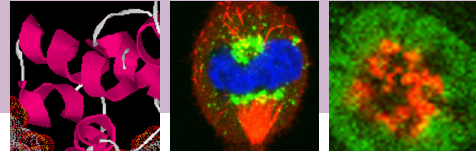


Program in Molecular Medicine



Cancer Biology

cancerbiology.umaryland.edu

Molecular Physiology and Pharmacology

mpp.umaryland.edu

Molecular Genetics, Genomics, and Bioinformatics

genetics.umaryland.edu

The Program in Molecular Medicine offers an interdisciplinary program of study and research that provides students with knowledge, research skills, and state-of-the-art methodologies which equips them for a successful research career in the Biomedical Sciences. The Program in Molecular Medicine blends Cancer Biology, Molecular Physiology and Pharmacology and Molecular Genetics, Genomics and Bioinformatics 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 provided exciting new insights into the development and progression of this complex disease. Students in the Molecular Physiology and Pharmacology 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. Students also focus on molecular therapeutics with model systems that include breast, prostate and skin cancer, chronic and acute neurodegenerative diseases. Students in the 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.

During their first semester, all Molecular Medicine students join students from other Graduate programs for a course "Mechanisms in Biomedical Science" 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 the student in critical thinking that is 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 mentor. Students also begin courses specific to the interest that they wish to pursue and choose the Molecular Medicine track that they wish to study in.

During the second semester of their second year, the students prepare for their qualifying exam by writing a research proposal on a topic of their choice usually related to their research. They defend the proposal in an oral qualifying exam which tests the breadth and depth of their knowledge and their ability to integrate knowledge and apply it to a research problem. Upon successful completion of the qualifying exam, the student is admitted to candidacy to pursue their thesis research under the direction of their mentor and an advisory committee. 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 their Ph.D. program during their fifth year.

Student Profiles



Kathryn Hodge

Kathryn Hodge, who is working in the Antalis laboratory, is investigating the role of Protease-Activated Receptor (PAR) 1 in ovarian cancer and on vascular endothelial cells. She has discovered a cell-linked protease that may contribute to the activation of PAR1. This in turn may trigger a signaling pathway that alters the progression of ovarian cancer.

Benjamin Prosser

Benjamin Prosser completed his Ph.D. degree in the laboratory of Martin Schneider in 2009. His thesis work attracted wide interest when his results were presented at the 2009 Biophysical Society meeting, and earned him an invitation to make a major presentation at the 2009 Gordon Conference on Muscle: Excitation - Contraction Coupling. Ben is currently beginning a postdoctoral fellowship to translate his work into cardiac muscle.

For More Information

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