Program Description

UNIVERSITY OF CONNECTICUT HEALTH CENTER
Graduate Program in Molecular Biology and Biochemistry

http://grad.uchc.edu

Contact

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Information On

Program of Study

The graduate Program in Molecular Biology and Biochemistry uniquely bridges modern molecular biology, microbiology, biochemistry, cell biology, and structural biology, leading to a Ph.D. in the biomedical sciences. The goals of the graduate program are to provide rigorous research training in an environment dedicated to advancing excellence in teaching and research. Whether graduates enter academic research, the biotechnology industry, liberal arts college teaching, patent law, or other disciplines, they bring to that career a solid base of knowledge, an ability to learn independently and think independently, and an enduring desire to use their full range of professional skills and experience in creative ways. Graduates are expected to have demonstrated a high degree of competence in research, as judged by publications in first-rank journals, and to have developed essential skills in identifying important research problems, planning research projects and scientific writing. In addition, students are expected to have incorporated ethical principles of scientific conduct into their professional attitudes and activities and to be sensitive to such issues throughout their careers. The success of this training approach is indicated by the high percentage of students who have developed successful independent careers in biomedical research. The current program offers an unparalleled opportunity to study a wide variety of biological problems at the biochemical, molecular, cellular, and structural levels. The interests of the faculty are summarized below.

Research Facilities

In addition to the general facilities of the Health Center (see page describing Programs in Biomedical Sciences), the program offers complete physical research facilities. There is research equipment, as well as expertise, for all areas of genetic, biochemical, molecular, cellular, and biophysical investigation. The department houses the UConn Health Center NMR Structural Biology Facility (http://structbio.uchc.edu), which includes a 400-MHz NMR spectrometer and cryoprobe-equipped 500- and 600-MHz NMR spectrometers, as well as a circular dichroism spectropolarimeter, isothermal titration calorimeter, and multi-angle laser light scattering facilities. An 800-MHz NMR spectrometer and X-ray crystallography facilities are planned for 2004–05. The department also houses the UConn Health Center Structural Biology Computational Facility, which includes a bank of Mac and Linux desk computers connected to ultrafast servers with the latest structural biology software. Facilities are also available for electron and confocal laser scanning microscopy, low-light-level imaging microscopy (in the state-of-the-art Center for Cell Analysis and Modeling), protein purification and sequencing, cell culture, monoclonal antibody production, DNA oligonucleotide and peptide synthesis and sequencing, and gene silencing using RNAI.

Financial Aid

Support for doctoral students engaged in full-time degree programs at the Health Center is provided on a competitive basis. Graduate research assistantships for 2004–05 provided a stipend of $25,000 per year, which included a waiver of tuition/University fees for the fall and spring semesters and a comprehensive health insurance policy. While financial aid is offered competitively, the Health Center makes every possible effort to address the financial needs of all students during their period of training.

Cost of Study

In 2004–05, tuition was $3764 per semester ($7528 per year) for full-time students who were Connecticut residents and $9448 per semester ($18,896 per year) for full-time out-of-state residents. General University fees are added to the cost of tuition for students who do not receive a tuition waiver. These costs are usually met by traineeships or research assistantships for doctoral students.

Living and Housing Costs

There is a wide range of affordable housing options in the greater Hartford area within easy commuting distance of the campus, including an extensive complex that is adjacent to the Health Center. Costs range from $600 to $800 per month for a one-bedroom unit; 2 or more students sharing an apartment usually pay less. University housing is not available at the Health Center.

Student Group

There are approximately 30 graduate students in the molecular biology and biochemistry program. There are approximately 150 graduate students in Ph.D. programs on the Health Center campus, and the total enrollment is about 1,000.

Location

The Health Center is located in the historic town of Farmington, Connecticut. Set in the beautiful New England countryside on a hill overlooking the Farmington Valley, it is close to ski areas, hiking trails, and facilities for boating, fishing, and swimming. Connecticut's capital city of Hartford, 7 miles east of Farmington, is the center of an urban region of approximately 800,000 people. The beaches of the Long Island Sound are about 50 minutes away to the south, and the beautiful Berkshires are a short drive to the northwest. New York City and Boston can be reached within 2_ hours by car. Hartford is the home of the acclaimed Hartford Stage Company, TheatreWorks, the Hartford Symphony and Chamber orchestras, two ballet companies, an opera company, the Wadsworth Antheneum (the oldest public art museum in the nation), the Mark Twain house, the Hartford Civic Center, and many other interesting cultural and recreational facilities. The area is also home to

several branches of the University of Connecticut, Trinity College, and the University of Hartford, which includes the Hartt School of Music. Bradley International Airport (about 20 minutes from campus) serves the Hartford/Springfield area with frequent airline connections to major cities in this country and abroad. Frequent bus and rail service is also available from Hartford.

The Health Center

The 200-acre Health Center campus at Farmington houses a division of the University of Connecticut Graduate School, as well as the School of Medicine and Dental Medicine. The campus also includes the John Dempsey Hospital, associated clinics, and extensive medical research facilities, all in a centralized facility with more than 1 million square feet of floor space. The Health Center's newest addition, the Academic Research Building, was opened in 1999. This impressive eleven-story structure provides 170,000 square feet of state-of-the-art laboratory space. The faculty at the center includes more than 260 full-time members. The institution has a strong commitment to graduate study within an environment that promotes social and intellectual interaction among the various educational programs. Graduate students are represented on various administrative committees concerned with curricular affairs, and the Graduate Student Organization (GSO) represents graduate students' needs and concerns to the faculty and administration, in addition to fostering social contact among graduate students in the Health Center.

Applying

Applications should be submitted on standard forms obtained from the Graduate Admissions Office at the UConn Health Center or the Web site. The application should be filed together with transcripts, three letters of recommendation, a personal statement, and recent results from the General Test of the Graduate Record Examinations. International students must take the Test of English as a Foreign Language (TOEFL) to satisfy Graduate School requirements. The deadline for completed applications is December 15. In accordance with the laws of the state of Connecticut and of the United States, the University of Connecticut Health Center does not discriminate against any person in its educational and employment activities on the grounds of race, color, creed, national origin, sex, age, or physical disability.

THE FACULTY AND THEIR RESEARCH

• Gordon G. Carmichael, Professor; Ph.D., Harvard. Regulation of viral gene expression and function.

• John H. Carson, Professor; Ph.D., MIT. RNA transport in cells of the nervous system.

• Ann Cowan, Associate Professor; Ph.D., Colorado at Boulder. Plasma membrane proteins in sperm.

• Asis Das, Professor; Ph.D., Calcutta. Gene control in bacterial adaptive response.

• Betty Eipper, Professor; Ph.D., Harvard. Biosynthesis and secretion of peptides by neurons and endocrine cells.

• Shlomo Eisenberg, Professor; Ph.D., McGill. Biochemistry of DNA replication in yeast.

• Henry M. Furneaux, Associate Professor; Ph.D., Aberdeen (Scotland). Regulation of gene expression by microRNAs.

• Michael Gryk, Assistant Professor; Ph.D., Stanford. Three-dimensional structure and function of proteins involved in DNA repair.

• Arthur Gunzl, Associate Professor; Ph.D., Tübingen (Germany). Transcription and antigenic variation in the mammalian parasite Trypanosoma brucei.

• Timothy Hla, Professor and Director, Center for Vascular Biology; Ph.D., George Washington. Gene expression in endothelial cells as it relates to angiogenesis; G-protein–coupled receptor signaling; biology of cyclooxygenase-2.

• Jeffrey Hoch, Associate Professor; Ph.D., Harvard. Biophysical chemistry of proteins.

• Glenn F. King, Professor; Ph.D., Sydney. Bacterial cell division and control of vector-borne disease.

• Stephen M. King, Associate Professor; Ph.D., University College, London. Structure and function of microtubule-based molecular motor proteins.

• Lawrence A. Klobutcher, Professor; Ph.D., Yale. DNA rearrangement, programmed translational frameshifting, and phagocytosis in ciliated protozoa.

• Dennis E. Koppel, Professor; Ph.D., Columbia. Biophysical studies of membrane dynamics.

• Mark Maciejewski, Assistant Professor; Ph.D., Ohio State. Enzymes of DNA replication, repair, and recombination.

• Choukri Ben Mamoun, Assistant Professor; Ph.D., Paris XI (South). Biology of the malaria parasite Plasmodium falciparum, including genomic analysis using cDNA microarrays.

• Mary Jane Osborn, Professor, Department of Microbiology; Ph.D., Washington (Seattle). Biogenesis of the outer membrane of Salmonella.

• Juris Ozols, Professor; Ph.D., Washington (Seattle). Isolation and structure of membranous proteins.

• Zheng-yu Peng, Associate Professor; Ph.D., Carnegie Mellon. Mechanisms of protein folding and structural consequences of mutations in human diseases.

• Steven E. Pfeiffer, Professor; Ph.D., Washington (St. Louis). Central nervous system myelin membrane biogenesis, axon-myelin signaling, and multiple sclerosis; proteomics; function of lipid rafts.

• Lawrence I. Rothfield, Professor; Ph.D., NYU. Membrane biology and biochemistry; bacterial cell division.

• Martin R. Schiller, Assistant Professor; Ph.D., Utah State. Structure-function of RhoGEFs; neurotrophin signaling.

• Peter Setlow, Professor; Ph.D., Brandeis. Biochemistry of bacterial spore germination.

• Hung Ton-That, Assistant Professor; Ph.D., UCLA. Pilus assembly and sortase-mediated anchoring of surface proteins in gram-positive bacteria.

• Sandra K. Weller, Professor and Department Head; Ph.D., Wisconsin. Mechanisms of DNA replication and DNA encapsidation in herpes simplex virus; virus-host interactions.

• Stephen K. Wikel, Professor; Ph.D., Saskatchewan. Molecular and cellular immunology of blood-feeding arthropod-host-pathogen interactions.

Data last updated: 06/10/2005