DEPARTMENT OF PATHOLOGY

Chair
- Vinay Kumar

Professors
- Albert Bendelac, Pathology
- Alexander Chervonsky, Pathology
- Richard DeMay, Pathology
- Yang Xin Fu, Pathology
- Thomas Gajewski, Pathology and Medicine
- John Hart, Pathology
- Aliya Husain, Pathology
- Thomas N. Krausz, Pathology
- Mark Lingen, Pathology
- Shane Meehan, Pathology
- Stephen Meredith, Pathology (Graduate Program Chair)
- Jonathon Miller, Pathology
- Anthony G. Montag, Pathology and Surgery
- Cathryn Nagler, Pathology
- Hans Schreiber, Pathology
- Lucia Schuger, Pathology
- Jerome Taxy, Pathology
- Jerrold Turner, Pathology
- Martin Weigert, Pathology
- Robert Wollmann, Pathology and Neurology
- Shu-Yuan Xiao, Pathology
- K-T Jerry Yeo, Pathology

Associate Professors
- John Anastasi, Pathology
- Beverly Baron, Pathology
- Anthony Chang, Pathology
- Barbara Kee, Pathology
- Susana Marino, Pathology
- Ivan Moskowitz, Pediatrics
- Ting-Wa Wong, Pathology

Assistant Professors
- Tatjana Antic, Pathology
- Nikolina Babic, Pathology
- Carrie A. Fitzpatrick, Pathology
The Department of Pathology previously joined with the Committee on Molecular Medicine to offer a joint program, Molecular Pathogenesis and Molecular Medicine. The graduate program in Molecular Pathogenesis and Molecular Medicine offers a program of study leading to the Doctor of Philosophy degree in Pathology. Fields of particular emphasis include immunobiology, vascular biology, and atherosclerosis, neurodegenerative disease, gastrointestinal epithelial biology, molecular oncology, and respiratory biology.

Instruction includes courses in biochemistry, defense reactions, cellular and molecular pathology, cell, molecular and genetic biology, cancer biology and immunology that are generally completed within the first two years of study. Each
student must select a faculty sponsor who is willing to supervise his or her thesis research. Such faculty members are generally in the Department of Pathology but may be chosen from other departments in the Biological Sciences Division if the research program is considered suitable by the departmental graduate student advisory committee.

The Department of Pathology’s graduate program is integrated within the Biomedical Sciences Cluster, which also includes graduate programs from the Committee on Cancer Biology, the Committee on Immunology, the Committee on Microbiology, and the Committee on Molecular Metabolism and Nutrition. The five academic units share several common courses and additional common events for students and faculty within the cluster. The goal of the cluster system is to encourage interdisciplinary interactions among both trainees and faculty, and to allow students flexibility in designing their particular course of study.

ADMISSION

Students interested in obtaining the Ph.D. in molecular pathogenesis and molecular medicine should submit an application to the Biological Sciences Division by December 1st of each year; indicate their cluster of interest as Biomedical Sciences and select Molecular Pathogenesis and Molecular Medicine as their proposed degree program.

THE DEGREE OF DOCTOR OF PHILOSOPHY

Ph.D. requirements include:

1. Completion of 9.5 course credits consisting of basic science, pathology and elective courses
2. Two laboratory rotations
3. A preliminary exam in the form of a mock NIH-style grant proposal
4. A thesis proposal
5. A final thesis defense

PATHOLOGY COURSES

MPMM 30600. Signal Transduction and Disease. 100 Units.
Topics include receptor ligands, membrane receptor tyrosine kinases and phosphatases, G proteins, proto-oncogenes, signaling pathways, cytoplasmic protein kinases and phosphatases, transcription factors, receptor-nucleus signaling, development and cancer, genetic dissection of signaling pathways, cell growth and cell proliferation, interplay of cell cycle regulators, cell cycle progression and apoptosis, and sensing of hypoxia and mechanical stimuli. The role of signaling in disease is a theme throughout the course.
Instructor(s): N. Dulin Terms Offered: Winter
Equivalent Course(s): CCTS 40300
MPMM 30800. Molecular Defense Mechanisms. 100 Units.
Defense mechanisms which include the mechanisms of inflammation, coagulation, immunological injury, cytokines, complement induced injury, hypersensitivity, autoimmunity and AIDS. Emphasis is on mechanisms at the molecular level with an introductory lecture and following with discussions of selected recent journal articles which are read and discussed at class sessions.
Instructor(s): S. Meredith Terms Offered: Spring

MPMM 39000. Major Human Disease Journal Club. 050 Units.
All Pathology Program graduate students must participate in the Biodisease Journal Club throughout their training. Credit will be given during the student's first and second years, however it is expected that students will continue to attend and participate in their later years.
Instructor(s): C. Reardon, G. Getz Terms Offered: Autumn, Winter, Spring
Note(s): Open to all BSD & PSD Students

MPMM 57500. Cell Growth, Injury, Repair and Death. 100 Units.
This course reviews the various modes of cell injury that can occur, the basic molecular healing responses, and pathways of metabolic survival or death. This course may be of interest to those interested in wound healing, biological stress responses, molecular chaperones, radiobiology, biomechanics, biomedical engineering, as well as trauma and critical care medicine.
Instructor(s): R. Lee Terms Offered: Autumn
Equivalent Course(s): MOLM 57500, ORGB 57500

PATH 30010. Immunopathology. 100 Units.
Five examples of diseases are selected each year among the following categories: autoimmune diseases, inflammatory bowel diseases, infection immunity, immunodeficiencies and gene therapy, and transplantation and tumor immunology. Each disease is studied in depth with general lectures that include, where applicable, histological analysis of diseased tissue samples and discussions of primary research papers on experimental disease models. Special emphasis is placed on understanding immunopathology within the framework of general immunological concepts and on experimental approaches to the study of immunopathological models.
Instructor(s): B. Jabri Terms Offered: Winter
Prerequisite(s): Consent of instructor
Equivalent Course(s): BIOS 25258, IMMU 30010