PATHOLOGY

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Instructor D. Dolezal

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Research Scientists Y. Bai, G. Coppola, K. Pham, J. Wang

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Clinical Professors J. Gill, W. Laskin

Assistant Clinical Professors M. DeJoseph, W. Frederick (*Laboratory Medicine*), M.M. Pinto, S. Straub, I. Yilldiz

Clinical Instructor P. Manrai

SCHOOL OF MEDICINE COURSES

Anatomic Pathology and Laboratory Medicine Combined Elective The goals for anatomic pathology are to understand the basic principles of diagnostic anatomic pathology and its role in clinical medicine. The goals for laboratory medicine are to learn appropriate usage and interpretation of laboratory tests and to gain a better understanding of the theoretical, technological, and clinical underpinnings of laboratory medicine. This elective is appropriate for students considering a career in laboratory medicine and/or pathology, and for all students who will use laboratory and pathology tests in their careers. One or two students every four weeks.

Anatomic Pathology Elective The department offers an elective to third- and fourth-year medical students that provides a broad experience in general diagnostic techniques. Students have opportunities to participate in autopsy pathology, cytopathology, and surgical pathology. A daily diagnostic conference is scheduled for both residents and students. In addition to direct responsibilities in autopsy and surgical pathology areas, the student has opportunities to participate in electron microscopy, immunohistochemistry, molecular diagnostics, and flow cytometry techniques.

Neuropathology Elective The major goals of this two-week elective rotation are to gain exposure to surgical and autopsy neuropathology, develop a basic understanding of common adult and pediatric CNS tumors and recognition of primary vs. metastatic tumors, develop a basic understanding of the grading of common brain tumors, recognize common non-neoplastic CNS disorders (e.g. infectious, inflammatory, vascular/infarct and neurodegenerative disorders), and gain an appreciation of molecular pathology and the use of predictive/prognostic biomarkers for neuropathologic diagnosis. Clinical settings include surgical neuropathology (EP2, NP3) at YNHH and autopsy/morgue (BML 55).

GRADUATE SCHOOL OF ARTS AND SCIENCES COURSES

PATH 5503b / C&MP 5503b / IBIO 5503b / PHAR 5503b / PTB 5503b, Responsible Conduct of Research, Refresher Course Staff

The NIH requires that students receive training in the responsible conduct of research every four years. This course meets that requirement for fourth-year students. The course has two components: (1) one large-group session is held for all fourth-year students through the BBS; the main topics are scientific misconduct and authorship; (2) two Immunobiology faculty facilitate discussions based on RCR topics, gathered in advance from the students; anonymous or hypothetical stories are selected by the

faculty and discussed in a workshop environment in which students are then asked to analyze each case and suggest courses of actions.

PATH 5620a and PATH 5622b / C&MP 5511a and C&MP 5512b / PHAR 5511a and PHAR 5512b / PTB 5620a and PTB 5622b, Laboratory Rotations Staff
TMMPP laboratory rotations, fall term.

PATH 5630b / BENG 5350b / MSCI 5350b, Biomaterial-Tissue Interactions Themis Kyriakides
Study of the interactions between tissues and biomaterials, with an emphasis on the importance of molecular- and cellular-level events in dictating the performance and longevity of clinically relevant devices. Attention to specific areas such as biomaterials for tissue engineering and the importance of stem/progenitor cells, as well as biomaterial-mediated gene and drug delivery.

PATH 5640a / B&BS 5640a, Developing and Writing a Scientific Research Proposal Katerina Politi, Renato Polimanti, Nelson LaMarche, Rui Chang, Jean-Ju Chung, and Stephania Libreros
The course covers the intricacies of scientific writing and guides students in the development of a scientific research proposal on the topic of their research. All elements of an NIH fellowship application are covered, and eligible students submit their applications for funding. Enrollment limited to twelve. Required of second-year graduate students in Pathology and Molecular Medicine. Registration allowed by prior authorization from course directors only.

PATH 5650b, Biology of Cancer David Stern and Qin Yan
A comprehensive survey of cancer research from the cellular to the clinical level. The relation of cancer to intracellular and intercellular regulation of cell proliferation is emphasized, as are animal models for cancer research. Background in molecular genetics and cell biology is assumed. Open to advanced undergraduates with permission of the organizers.

PATH 5660b / C&MP 5650b / PHAR 5580b / PTB 5650b, The Responsible Conduct of Research Barbara Ehrlich
Organized to foster discussion, the course is taught by faculty in the Pharmacology, Pathology, and Physiology departments and two or three senior graduate students. Each session is based on case studies from primary literature, reviews, and two texts: Francis Macrina's *Scientific Integrity* and Kathy Barker's *At the Bench*. Each week, students are required to submit a reaction paper discussing the reading assignment. Students take turns leading the class discussion; a final short paper on a hot topic in bioethics is required.

PATH 5670b, Pathobiology Jon Morrow, Samuel Katz, Karin Finberg, Harold Sanchez, and Declan McGuone
Mechanisms of human disease from a pathologic perspective. Includes sections devoted to systemic pathobiology, hematologic disease, gastrointestinal disease, renal disease, and cancer genetics. Subjects covered include cell and tissue injury, disordered physiology, inflammatory disease, and neoplastic disease. Enrollment limited.

PATH 5679a and PATH 5680b / C&MP 5629a and C&MP 5630b / PHAR 5501a and PHAR 5502b / PTB 5629a and PTB 5630b, Seminar in Molecular Medicine, Pharmacology, and Physiology Yansheng Liu, Emanuela Bruscia, Arnaud Augert, Caleigh Mandel-Brehm, Hongying Shen, Susumu Tomita, and Christopher Bunick
Readings and discussion on a diverse range of current topics in molecular medicine, pharmacology, and physiology. The class emphasizes analysis of primary research literature and development of presentation and writing skills. Contemporary articles are assigned on a related topic every week, and a student leads discussions with input from faculty who are experts in the topic area. The overall goal is to cover a specific topic of medical relevance (e.g., cancer, neurodegeneration) from the perspective of three primary disciplines (i.e., physiology: normal function; pathology: abnormal function; and pharmacology: intervention). Required of and open only to Ph.D. and M.D./Ph.D. students in the Molecular Medicine, Pharmacology, and Physiology track.

PATH 5681a, Advanced Topics in Cancer Biology Kurt Schalper and Ryan Jensen
This advanced course focuses on readings and discussion on three or four major topics in cancer biology, such as targeted therapy, tumor immunology, tumor metabolism, and genomic evolution of cancer. For each topic, the class starts with an interactive lecture, followed by critical analysis of primary research literature. Recent research articles are assigned, and a student leads discussions with input from faculty who are experts in the topic area. Prerequisite: PATH 5650 or permission of the instructor. Open to all Ph.D., M.D./Ph.D., and M.P.H. students and to advanced undergraduates at the discretion of the instructor.

PATH 5690a, Molecular Mechanisms of Disease Sathish Ramakrishnan and Carlos Fernandez-Hernando
This course covers aspects of the fundamental molecular and cellular mechanisms underlying various human diseases. Many of the disorders discussed represent major forms of infectious, degenerative, vascular, neoplastic, and inflammatory disease. Additionally, certain rarer diseases that illustrate good models for investigation and/or application of basic biologic principles are covered in the course. The objective is to highlight advances in experimental and molecular medicine as they relate to understanding the pathogenesis of disease and the formulation of therapies.