Experimental Pathology

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http://www.pathology.uci.edu/

The Department of Pathology and Laboratory Medicine offers a Ph.D. in Biomedical Sciences in our Experimental Pathology Graduate Program. The graduate program emphasizes experimental approaches to better understand the molecular and cellular mechanisms of disease, particularly human disease. Principal areas of research investigated by faculty in Experimental Pathology include concentrating studies in microbial genomics, innate immunity, cellular stress, stem cell biology, developmental neurobiology, cancer, and neurodegenerative disease.

Admission to Experimental Pathology is generally through one of two gateway programs, which offer multidisciplinary graduate training, Cellular and Molecular Biosciences (CMB) (https://cmb.uci.edu) or Interdepartmental Neuroscience Program (INP) (https://inp.uci.edu). The CMB and INP programs include a first-year curriculum and the opportunity to rotate through two or more research laboratories. From these rotations and at the end of their first year in the gateway programs, the students can select to join the laboratories of Experimental Pathology faculty to complete their research thesis. In addition to the gateway programs, students may be considered to enter the Experimental Pathology program by direct admission based on the recommendation of an Experimental Pathology faculty member or via the M.D./Ph.D. Medical Scientist Training Program (MSTP).

All students should prepare to complete their advancement to candidacy exam by the end of their third year. The normative time for completion of the Ph.D. is five years, and the maximum time permitted is seven years.

Faculty

Anshu Agrawal, Ph.D. Lucknow University, *Professor in Residence of Medicine; Pathology and Laboratory Medicine*

Daniela A. Bota, M.D., Ph.D. Carol Davila University of Medicine and Pharmacy, *Vice Dean for Clinical Research and Professor of Neurology; Neurological Surgery; Pathology and Laboratory Medicine*

Jefferson Chan, M.D. Ph.D. University of California, San Francisco, *Professor of Pathology and Laboratory Medicine; Environmental and Occupational Health*

Peter Chang, M.D. Northwestern University, *Assistant Professor in Residence of Radiological Sciences; Biological Chemistry; Pathology and Laboratory Medicine*

Dongbao Chen, Ph.D. China (Beijing) Agricultural University, *Professor of Obstetrics and Gynecology; Pathology and Laboratory Medicine*

Daniel Chow, M.D. University of California, Los Angeles, *Assistant Professor in Residence of Radiological Sciences; Neurology; Pathology and Laboratory Medicine*

Wendy Cozen, D.O., M.P.H. Western University of Health Sciences M.P.H., University of California, Los Angeles, *Professor of Medicine; Environmental and Occupational Health; Epidemiology and Biostatistics; Pathology and Laboratory Medicine*

Luis M. De La Maza, M.D., Ph.D. University of Minnesota, *Distinguished Professor of Pathology and Laboratory Medicine*

Robert A. Edwards, M.D., Ph.D. Baylor College of Medicine, *Professor of Pathology and Laboratory Medicine*

Mark J. Fisher, M.D. University of Cincinnati, *Professor of Neurology; Anatomy and Neurobiology; Pathology and Laboratory Medicine; Political Science*

Donald N. Forthal, M.D. University of California, Irvine, *Professor of Medicine; Molecular Biology and Biochemistry; Pathology and Laboratory Medicine*

Elizabeth Head, Ph.D. University of Toronto, *Professor of Pathology and Laboratory Medicine*

Virginia E. Kimonis, M.D. University of Southampton, *Professor of Pediatrics; Environmental Health Sciences; Genetic Counseling; Pathology and Laboratory Medicine*

Albert R. La Spada, M.D., Ph.D. University of Pennsylvania, *Associate Dean for Research Development and Distinguished Professor of Biological Chemistry; Neurobiology and Behavior; Neurology; Pathology and Laboratory Medicine*

Jana Lipkova, Ph.D. Technical University Munich, *Assistant Professor of Pathology and Laboratory Medicine; Biomedical Engineering*

Shahrdad Lotfipour, Ph.D. University of California, Irvine, *Associate Professor of Emergency Medicine; Pathology and Laboratory Medicine; Pharmaceutical Sciences*

Bryce A. Mander, Ph.D. Northwestern University, *Associate Professor of Psychiatry and Human Behavior; Cognitive Sciences; Pathology and Laboratory Medicine*

Michael McClelland, Ph.D. University of Georgia, *Professor of Microbiology and Molecular Genetics; Pathology and Laboratory Medicine*

Dan Mercola, M.D., Ph.D. University of California, Los Angeles, *Professor of Pathology and Laboratory Medicine*

Haik Mkhikian, M.D., Ph.D. University of California, Irvine, *Assistant Professor of Pathology and Laboratory Medicine*

Edwin S. Monuki, M.D., Ph.D. University of California, San Diego, *Department Chair and Warren L. Bostick Endowed Chair in Pathology and Professor of Pathology and Laboratory Medicine; Developmental and Cell Biology*

Hannah L. Park, Ph.D. Stanford University, *Associate Professor in Residence of Epidemiology; Epidemiology and Biostatistics; Pathology and Laboratory Medicine*

Farahnaz Rahmatpanah, Ph.D. University of Missouri, *Assistant Professor in Residence of Pathology and Laboratory Medicine*

Matthew F. Rose, M.D., Ph.D. Baylor College of Medicine, *Assistant Professor of Pathology and Laboratory Medicine*

Seyed Ahmad Sajjadi, M.D., Ph.D. Tehran University, *Associate Clinical Professor of Neurology; Pathology and Laboratory Medicine*

Mahesweari Senthil, M.D. Madurai Medical College, *Professor of Surgery; Pathology and Laboratory Medicine*

Pratik Shah, Ph.D. University of Mississippi Medical Center, *Assistant Professor of Pathology and Laboratory Medicine; Biomedical Engineering*

Andrea Tenner, Ph.D. University of California, San Diego, *Professor Emerita of Molecular Biology and Biochemistry; Neurobiology and Behavior; Pathology and Laboratory Medicine*

Courses

PATH 200A. Research in Experimental Pathology. 2-12 Units.
Independent research for the Ph.D. program within the laboratories of graduate training faculty in Experimental Pathology.
Corequisite: PATH 203A.
Repeatability: May be taken unlimited times as topics vary

PATH 200B. Research in Experimental Pathology. 2-12 Units.
Independent research for the Ph.D. program within the laboratories of graduate training faculty in Experimental Pathology.
Corequisite: PATH 203B.
Repeatability: May be taken unlimited times as topics vary

PATH 200C. Research in Experimental Pathology. 2-12 Units.
Independent research for the Ph.D. program within the laboratories of graduate training faculty in Experimental Pathology.
Corequisite: PATH 203C.
Repeatability: May be taken unlimited times as topics vary

PATH 200R. Research in Experimental Pathology for First-Year Students. 2-12 Units.
Independent research within the laboratories of graduate training faculty in Experimental Pathology for first-year Ph.D. students.
Grading Option: Satisfactory/Unsatisfactory only
Repeatability: May be taken for credit 3 times

PATH 203A. Advanced Studies in Experimental Pathology. 1 Unit.
A tutorial course for Ph.D. students in Experimental Pathology entailing attendance at Departmental seminars and critical reading of the scientific literature.
Corequisite: PATH 200A.
Repeatability: May be taken unlimited times

PATH 203B. Advanced Studies in Experimental Pathology. 1 Unit.
A tutorial course for Ph.D. students in Experimental Pathology entailing attendance at Departmental seminars and critical reading of the scientific literature.
Corequisite: PATH 200B.
Repeatability: May be taken unlimited times

PATH 203C. Advanced Studies in Experimental Pathology. 1 Unit.
A tutorial course for Ph.D. students in Experimental Pathology entailing attendance at Departmental seminars and critical reading of the scientific literature.
Corequisite: PATH 200C.
Repeatability: May be taken unlimited times

PATH 204A. Experimental Pathology Research Seminar. 1 Unit.
Seminar series for graduate students in Experimental Pathology. Students attend seminars and, beginning in their third year of graduate study, present one formal seminar on their graduate research.
Grading Option: Satisfactory/Unsatisfactory only
Repeatability: May be taken unlimited times

PATH 204B. Experimental Pathology Research Seminar. 1 Unit.
Seminar series for graduate students in Experimental Pathology. Students attend seminars and, beginning in their third year of graduate study, present one formal seminar on their graduate research.
Grading Option: Satisfactory/Unsatisfactory only
Repeatability: May be taken unlimited times

PATH 204C. Experimental Pathology Research Seminar. 1 Unit.
Seminar series for graduate students in Experimental Pathology. Students attend seminars and, beginning in their third year of graduate study, present one formal seminar on their graduate research.
Grading Option: Satisfactory/Unsatisfactory only
Repeatability: May be taken unlimited times

PATH 221. Immunopathogenic Mechanisms of Disease. 3 Units.
Examination of the mechanisms underlying disease states mediated by immune dysregulation including mechanisms of immune evasion by cancer, diseases mediated by cytokine dysregulation, role of the microbiome of the GI tract and of other disease sites, and adoptive T-cell (CAR-T-cells).
Corequisite: Recommended: MMG 215.
Prerequisite: MMG 215. Recommended: MMG 215.
Same as M&MG 221
Restrictions: Campus Honors Collegium students and juniors and seniors may audit.

PATH 225. Molecular Mechanisms of Human Disease. 3 Units.
Provides an overview of the molecular mechanisms of human diseases, including neurologic, hematologic, neoplastic, and infectious diseases. Students gain an understanding of these mechanisms, as well as models of human diseases.
Same as M&MG 225

PATH 227. Experimental Pathology Journal Club. 1 Unit.
Graduate-level course, which is open to all years, will involve the reading and discussion of papers, preferably written by the invited seminar speaker. Discussions will cover advanced topics in experimental pathology as related to an understanding of human disease.
Corequisite: PATH 204A, PATH 204B, PATH 204C.
Grading Option: Satisfactory/Unsatisfactory only
Repeatability: May be taken unlimited times

PATH 240. Neuropathology. 3 Units.
Covers genetic and molecular mechanisms of neurological diseases. A grounding in neuroanatomy and prior or simultaneous enrollment in Anatomy 210A or the equivalent is strongly recommended. Resident physicians and clinical fellows can audit the course.
Repeatability: May be taken unlimited times

PATH 292A. Scientific Communication. 2 Units.
Small group meetings for graduate students to practice scientific writing, debate, and presentation skills.
Grading Option: Satisfactory/Unsatisfactory only
Repeatability: May be taken unlimited times

PATH 292B. Scientific Communication. 2 Units.
Small group meetings for graduate students to practice scientific writing, debate, and presentation skills.
Grading Option: Satisfactory/Unsatisfactory only
Repeatability: May be taken unlimited times

PATH 292C. Scientific Communication. 2 Units.
Small group meetings for graduate students to practice scientific writing, debate, and presentation skills.
Grading Option: Satisfactory/Unsatisfactory only
Repeatability: May be taken unlimited times

PATH 298. Independent Study. 6-10 Units.
Provided for Medical Science Training Program students to synthesize the basic science information learned during the basic science years of medical school and learn how to apply that knowledge toward graduate research directed at understanding the basis of human disease.
Grading Option: Satisfactory/Unsatisfactory only
Repeatability: May be taken unlimited times

PATH 299. Dissertation in Experimental Pathology. 1-12 Units.
Provided for the preparation and completion of the dissertation required for the Ph.D. degree.
Repeatability: May be taken unlimited times