Cancer Biology

Chair, Graduate Program
Jerry W. Shay, Ph.D.

Degree Offered
Doctor of Philosophy

Faculty

Professors

John M. Abrams
Ph.D., Stanford University, 1989

David Boothman
Ph.D., University of Miami, 1986

David J. Chen
Ph.D., University of Missouri-Columbia, 1978

Melanie H. Cobb
Ph.D., Washington University, St. Louis, 1976

David R. Corey
Ph.D., University of California, Berkeley, 1990

Jef K. DeBrabander
Ph.D., University of Ghent, Belgium, 1993

Beatriz M.A. Fontoura
Ph.D., New York University School of Medicine, 1996

Jinming Gao
Ph.D., Harvard University, 1996

Robert E. Hammer
Ph.D., Wayne State University, 1981

Jer-Tsong “J.T.” Hsieh
Ph.D., University of Wisconsin, Madison, 1989

Jin Jiang
Ph.D., Columbia University, 1992

Beth Levine
M.D., Cornell University Medical College, 1986

Ralph P. Mason
Ph.D., University of Cambridge, England, 1986

Joshua Mendell
M.D., Ph.D., Johns Hopkins University, 2004

John D. Minna
M.D., Stanford University, 1967

Sean Morrison
Ph.D., Stanford University, 1996

Jerry Y. Niederkorn
Ph.D., University of Arkansas, 1977

Tej K. Pandita
Ph.D., Punjab University, India, 1980

Luis F. Parada
Ph.D., Massachusetts Institute of Technology, 1985

Theodora Ross
M.D., Ph.D., Washington University, St. Louis, 1993

Michael G. Roth
Ph.D., University of Alabama at Birmingham, 1982

Jerry W. Shay
Ph.D., University of Kansas, 1972

Stephen Skapek
M.D., Duke University School of Medicine, 1988

Michael A. White
Ph.D., University of North Carolina at Chapel Hill, 1992

Cancer Biology

• biological chemistry • biomedical engineering • cell regulation • genetics and development • immunology • integrative biology • molecular biophysics • molecular microbiology • neuroscience
The Cancer Biology Graduate program provides multidisciplinary training for the student interested in pursuing a research career in any aspect of cancer biology, including mammalian biology, but also including the study of genes and processes in other eukaryotic organisms. The Program offers doctoral students the most up-to-date knowledge and research training in molecular and cellular aspects of cancer biology. The broad range of interests and expertise of faculty members enables students to concentrate specifically in one of several areas, such as apoptosis, senescence, cancer genetics, cell cycle, chromosome damage/repair, drug resistance, metastatic progression, signal transduction, and tumor biology, among others.

A characteristic of the scientific environment at UT Southwestern is the close proximity of basic science and clinical departments. The extensive collaborations of the Program faculty with faculty of clinical departments provide additional opportunities for students to contribute significantly to research with direct patient and medical relevance. Faculty members of the Program are also well-recognized in their fields and maintain a lively communication with colleagues around the world. Numerous seminars by outstanding visiting scientists are offered and are a vital component of the educational experience.

Special Requirements for Admission

Students wishing to join the Cancer Biology Graduate Program must be enrolled in the Division of Basic Science and be in good standing academically. It is not necessary for a student within a Program to choose a mentor who is a faculty member of the Program, provided that the student has sound reasons for this choice. Students ordinarily will apply for admission to the Program after completion of the first-year curriculum but may participate in the Program informally at any time after successful admission into the Division of Basic Science.
CURRICULUM

The Cancer Biology Graduate program provides advanced courses, seminars, and supervised research based upon successful completion of the first-year Core Course and the research rotations that are required by the Division of Basic Science. Each student entering the Program must successfully complete two advanced courses that provide a core of knowledge important to any cancer biologist: Molecular Mechanisms in Cancer Biology; and Stem Cells, Cancer, and Cancer Stem Cells. In addition, students are required to successfully complete a course designed to prepare for the qualifying examination and 4.5 credit hours of course work in subjects offered by any of the Division’s graduate programs. The course descriptions are included in the Division of Basic Science chapter of this catalog.

Each semester students participate in a seminar program that offers the critical review and presentation of current research literature. In the spring of the second year, students who have successfully completed their advanced course work prepare and orally defend a research proposal before an examining committee of the Program faculty. Successful completion of this examination is a prerequisite for admission to candidacy for the Ph.D. degree.

ADVANCED COURSES

- Cancer Biology I: Hallmarks of Cancer and Cancer Stem Cells
- Cancer Biology II: Advanced Concepts in Cancer Biology
- Cancer Biology III: Qualifying Exam and Hypothesis-Driven Grant Writing

STUDENT WORKS-IN-PROGRESS, JOURNAL CLUB, AND GRAND ROUNDS

Works-in-Progress meets weekly except when the monthly Cancer Center Grand Rounds are scheduled. Works-in-Progress offers a format in which students are encouraged to think critically about their research and how it relates to a broader area of biology. Journal Club is student-run with the objective of familiarizing students with the lecture subject of an upcoming visiting speaker for the Cancer Center Grand Rounds. All students within the Cancer Biology Graduate Program are expected to participate in the weekly WIP/Journal Club and to present their ongoing research once a year. Students are required to attend WIP, Journal Club, and Cancer Center Grand Rounds each year.