Department of Cancer Biology

The Department of Cancer Biology is a newly developed basic science department in the School of Medicine at the University of Kansas Medical Center. The missions of our department are:

1. To build a strong team of basic researchers with a collaborative and translational mindset who will discover fundamental characteristics of cancer cells that can lead to novel therapeutic and preventive approaches which reduce cancer incidence, morbidities and mortality;
2. To understand the molecular genetic and epigenetic, biochemical, cellular and physiologic bases of cancer etiology and progression;
3. To understand the interactions between tumor cells and the microenvironments in which they find themselves;
4. To educate the next generation of cancer researchers, clinicians and patients.

Our department is funded by grants from the National Cancer Institute, National Institutes of Health, American Cancer Society, Susan G. Komen for the Cure, the National Foundation for Cancer Research and from generous donations from patients, family and friends of the KU Cancer Center.

The department is currently developing a master’s degree program (Master of Science) and a doctoral (Ph.D.) program in Cancer Biology. The program specifics and application details will be posted to our website (http://www.kumc.edu/school-of-medicine/cancer-biology.html) once the program has been approved by the Kansas Board of Regents. Although no graduate program in Cancer Biology is offered at this time, we do offer a growing number of Cancer Biology (CBIO) courses that may be taken for graduate credit.

Courses

CBIO 800. Mechanisms of Tumor Development and Progression: Colloquium Format. 3 Hours.
Elective course. This upper level course examines the genetic alterations and cellular phenotypes involving cancer development in a practical manner. The course discusses the underlying molecular and biological principles that result from these genetic alterations and the methods/approaches to examine cancer phenotypes. By the end of the course, students should understand how cancer develops and how to design experiments to address the scientific hypothesis. In addition, students are expected to learn key points to give scientific presentation. The class will involve two, 1.5-hour lecture per week: one consists of didactic lecture and the other is student-led journal club related to the lecture topic. Prerequisite: College level biology. LEC.

CBIO 820. Cellular and Molecular Mechanisms of Signal Transduction in Cancer: Colloquium. 2 Hours.
This elective course will be offered in the spring semester every year. This course will be full of discussions on the importance of targeting signaling pathways in cancer through didactic teaching following student led discussion on the topic. The course discusses the underlying responses on signaling mechanisms in different cancers. The major theme is an understanding of how cancer cells receive, transmit and respond to environmental signals. Topics will include different complexity in signal transduction in cancer. There will be a series of lectures on the topics of signal transduction, cell cycle regulation, apoptosis and cancer. Each topic series will be followed immediately by student presentations. The presentations will complement the lectures by providing an overview of a particular topic through the in depth examination of a current research publication. LEC.

CBIO 900. Carcinogenesis and Cancer Biology. 3 Hours.
This is a semester long course that presents a survey of core topics in cancer biology and builds upon core IGPBS courses. The survey includes topics of etiology, genetics, signaling, biochemistry, tumor progression, metastasis, major treatment modalities and overviews of major cancer types. Students are assessed based upon class participation, presentations and examinations. Prerequisite: Completion of GSMC 850, GSMC 851, GSMC 853 and GSMC 854 or the equivalent or permission of instructor. LEC.