

Mentor	Research area(s)	Internship category	Internship description
<p>Jianmin Zhang <i>Dept. of Cancer Genetics</i> www.roswellpark.org / Jianmin-Zhang</p>	<p>Cancer genetics;Cancer molecular and cellular biology</p>	<p>Scientific Research</p>	<p>Dysregulation of Hippo pathway signaling in breast cancer Using molecular, cellular and biochemical approaches as well as the 3-D cell culture system and mouse models, we are intensively investigating the roles of EMT and the Hippo signaling pathway in the initiation and progression of solid carcinomas, e.g., breast cancer.</p>
<p>Maciej Goniewicz <i>Dept. of Cancer Prevention and Population Sciences</i> www.roswellpark.org / Maciej-Goniewicz</p>	<p>Cancer prevention and epidemiology;Public Health</p>	<p>Scientific Research</p>	<p>Safety of electronic cigarettes Research projects are focused on new nicotine-containing products and alternative forms of tobacco. We examine safety and efficacy of electronic nicotine delivery devices, commonly called e-cigarettes. These studies include the laboratory evaluation of the products, pharmacological and toxicological assessment, surveys among their users, and their potential application in harm reduction, cancer prevention and smoking cessation.</p>
<p>Richard O'Connor <i>Dept. of Cancer Prevention and Population Sciences</i> www.roswellpark.org / Richard-O'Connor</p>	<p>Cancer prevention and epidemiology;Regulatory Science</p>	<p>Scientific Research</p>	<p>Consumer responses to flavored tobacco products Students will have the opportunity to participate in exciting ongoing research in tobacco regulatory science as a part of our Western New York Center for Research on Flavored Tobacco Products, one of 9 Tobacco Centers of Regulatory Science in the US. Interns will assist with data processing from several studies examining consumer's cognitive and sensory responses to flavored electronic cigarettes. Activities would include secondary analysis of existing datasets, observing data collection from ongoing studies, and helping to prepare materials for upcoming research studies.</p>
<p>Li Tang <i>Dept. of Cancer Prevention and Population Sciences</i> www.roswellpark.org / Li-Tang</p>	<p>Cancer molecular epidemiology;Cancer prevention and epidemiology</p>	<p>Scientific Research</p>	<p>Gene-diet interactions in cancer survivorship and treatment outcome Our research program is engaged in molecular epidemiological study of cancer, with focus on cancer recurrence and survival. Our research interest is to understand the interactive roles of genetic and dietary factors in cancer prognosis by utilizing multi-disciplinary approaches. The primary focus is on cruciferous vegetables and their key anti-cancer effectors, the phytochemical isothiocyanates. We have successfully conducted studies on anti-cancer mechanisms, metabolism, and bioavailability of isothiocyanates in both in vitro and in vivo models. We are currently investigating ways to translate findings into clinical settings, in the hope of developing dietary intervention approaches to improve cancer prognosis.</p>

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<p>Gal Shafirstein <i>Dept. of Cell Stress Biology</i> www.roswellpark.org / Gal-Shafirstein</p>	<p>Photodynamic Therapy</p>	<p>Scientific Research</p>	<p>Treatment Planning and Light Dosimetry in Photodynamic Therapy (PDT) My research team is focused on the development and implementation of treatment planning and light dosimetry in PDT. My group includes, 2 engineers, 2 research scholars and 3 pre-doctoral student. We do preclinical and clinical studies, and investigate combination therapies.</p>
<p>Joseph Barbi <i>Dept. of Immunology</i> www.roswellpark.org / Joseph-Barbi</p>	<p>Tumor immunology & immunotherapy</p>	<p>Scientific Research</p>	<p>Exploring the mechanisms and therapeutic potential of novel factors capable of modulating immune responses. The immune system's destructive potential is regulated by numerous regulatory mechanisms. By understanding these we can devise novel therapies to unleash optimal anti-tumor responses in cancer patients. These studies will utilize in vitro assays of immune cell function, in vivo (mouse) tumor models, and fluorescence-based techniques for visualizing immune cells.</p>
<p>Joseph Skitzki <i>Dept. of Immunology</i> www.roswellpark.org / Joseph-Skitzki</p>	<p>Tumor immunology & immunotherapy; Surgical Oncology</p>	<p>Scientific Research Clinical Research</p>	<p>real-time monitoring of anti-cancer immune responses My laboratory focuses on the understanding of how lymphocytes trafficking to sites of tumor during immunotherapy. Recent advances in intravital microscopy are being leveraged for clinical translation. Specific projects in the lab are: 1. To evaluate reagents for human lymphocyte labeling 2. To determine if endogenous lymphocyte activity can be followed over time in mouse models 3. To develop analytical methods for intravital microscopy</p> <p>observership in surgical oncology I am a surgical oncologist in the area of soft tissue surgery. My focus is on melanoma and regional therapies for cancer. There are opportunities for an interested student to observe our clinic and OR practice. A melanoma clinical database exists along with corresponding tissue and blood samples which could be a source for a short-term project. The end-goal would be to generate a clinical hypothesis, extract the data and have it presented in a scientific manner (abstract, manuscript, poster)</p>

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<p>Brahm Segal <i>Dept. of Medicine</i> www.roswellpark.org / Brahm-Segal</p>	<p>Tumor immunology & immunotherapy</p>	<p>Scientific Research</p>	<p>Innate Immune Responses in Ovarian Cancer The intern will work under the supervision of a senior scientist or PhD student to evaluate immune responses in patients with ovarian cancer. Work may also involve mouse models of ovarian cancer.</p>
<p>Mukund Seshadri <i>Dept. of Oral Medicine/Head and Neck Surgery</i> www.roswellpark.org / Mukund-Seshadri</p>	<p>Cancer biophysics;Cancer pharmacology and therapeutics;Radiation Oncology;Cancer experimental diagnostics;Cancer prevention and epidemiology</p>	<p>Scientific Research Clinical Research</p>	<p>Multi-modal Imaging of Cancer Research in my laboratory is focused on three main areas: (i) understanding the vascular biology of head and neck cancers and exploiting them for therapeutic benefit, (ii) development of safe and effective bio-adjuvant approaches for the prevention of oral cancers and, (iii) the use of advanced imaging methods such as MRI, CT in preclinical models and in patients to study response of head and neck tumors to chemotherapy and radiation. The work is interdisciplinary in nature and draws on concepts from biophysics, cancer biology, pharmacology and molecular biology. Given my clinical background, I feel strongly about pursuing a research program that addresses clinically-relevant questions in the laboratory setting and potentially translates the knowledge gained into meaningful outcomes for patients.</p>
<p>Boyko Atanassov <i>Dept. of Pharmacology and Therapeutics</i> www.roswellpark.org / Boyko-Atanassov</p>	<p>Cancer genetics;Cancer molecular and cellular biology</p>	<p>Scientific Research</p>	<p>Defining the functions of Ubiquitin Specific Proteases in the regulation of Receptor Tyrosine Kinase Signaling Pathways in Cancer Abnormal expression of receptor tyrosine kinases (RTKs) has been recognized as a key factor driving tumor progression of several cancers. Work in our laboratory is focused on elucidating the molecular mechanisms by which ubiquitin-specific proteases (USPs) are involved in RTK stabilization in cancer cells and hence potentiate tumor growth.</p>

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<p>Dhyan Chandra</p> <p><i>Dept. of Pharmacology and Therapeutics</i></p> <p>www.roswellpark.org / Dhyan-Chandra</p>	<p>Cancer molecular and cellular biology; Cancer pharmacology and therapeutics</p>	<p>Scientific Research</p>	<p>Mitochondrial Regulation of Cell Death and Resistance in Cancer</p> <p>The main focus of our research is to understand the molecular basis of therapy resistance in multiple cancer types including in prostate, breast, and colon cancers. To accomplish our goals, we are investigating two different, but complementary projects. The first project delineates how mitochondria-mediated cell death signaling is defective in cancer cells and cancer stem cells. The second project defines the role of heat-shock proteins in cancer cell survival and death. We are also characterizing the role of mitochondria in health disparities among prostate and breast cancer patients. Our research suggests that protein complexes are important regulators of cancer cell death and survival. We use multiple biochemical, genetic, cellular, mouse models of cancer, and molecular approaches to identify and characterize protein complexes in subcellular compartments including in the mitochondrion. Detailed understanding of protein complexes will lay a foundation for targeting cell death and survival machinery for cancer therapy. Our model systems include both laboratory cell culture and mouse models of cancer to examine cellular signaling in response to anticancer agents. Our ultimate goals are to understand mitochondrial biology in cancer and target mitochondria for prevention and therapy of multiple types of cancer.</p>
<p>Xinjiang Wang</p> <p><i>Dept. of Pharmacology and Therapeutics</i></p> <p>www.roswellpark.org / Xinjiang-Wang</p>	<p>Cancer genetics; Cancer pharmacology and therapeutics; Cancer molecular and cellular biology</p>	<p>Scientific Research</p>	<p>Development of Novel Targeted Therapies for Leukemia Treatment</p> <p>The goal of this study is to evaluate the antitumor effect of newly identified small molecule inhibitors for Mdm2-MdmX E3 ubiquitin ligase in leukemia/lymphoma cells. Specifically, we are trying to understand how these compounds kill drug-resistant leukemia/lymphoma cells and whether they can be used as novel combination therapies for melanoma and pancreatic cancer to overcome their resistance to current therapies. The summer students will be assigned to one of the current projects under supervision of experience postdocs or research associate. The projects will involve techniques of protein analysis such as Western blotting and molecular biology methods such as DNA cloning and gene expression and analysis in cancer cells, proliferation assays and cell death assays of drug-treated cancer cells.</p>

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<p>Lalith Kumaraswamy</p> <p><i>Dept. of Radiation Medicine</i></p> <p>www.roswellpark.org / Lalith-Kumaraswamy</p>	<p>Radiation Oncology;Other (please specify);Medical Physics</p>	<p>Scientific Research</p>	<p>Assessing the Quality of Treatment Plans Through Benchmarking</p> <p>Patient imaging plays a crucial role in Radiation therapy. Using an Electronic Portal Imaging Device to capture images during treatments permits clinicians not only to track tumor motion, but also could be utilized to modify subsequent treatments (adaptive radiation therapy). My research interest involves utilizing these imaging techniques to achieve maximum therapeutic effect. Students will be helping to analyze patient specific data to optimize dose metrics to provide more realistic measure of treatment outcome.</p>
<p>Harish Malhotra</p> <p><i>Dept. of Radiation Medicine</i></p> <p>www.roswellpark.org / Harish-Malhotra</p>	<p>Radiation Oncology</p>	<p>Scientific Research</p>	<p>Evaluation of the accuracy of various dose computation algorithms for lung Stereotactic Body Radiotherapy</p> <p>Treatment planning in radiotherapy is a process which lets a clinician preview the radiation dose distribution in a patient using various mathematical models. The accuracy of these dose computation algorithms depend on various factors and are often inversely related to the needed computation needed. However, computation power of the computers has increased significantly in recent times and hence it is now possible to employ more sophisticated algorithms. In this study, we will use different algorithms for a number of lung patients and evaluate their differences in estimating dose to the tumor and organs at risk.</p>
<p>Matthew Podgorsak</p> <p><i>Dept. of Radiation Medicine</i></p> <p>www.roswellpark.org / Matthew-Podgorsak</p>	<p>Radiation Oncology;Medical Physics</p>	<p>Scientific Research</p>	<p>Medical Physics applications</p> <p>A student intern will study clinical aspects of medical physics. Medical physics is the branch of physics that combines physics with medical applications. Our group is primarily involved in the treatment of cancer patients with radiation, so a student intern would learn basic clinical approaches to the application of radiation in the treatment of cancer.</p>

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<p>Santosh Patnaik</p> <p><i>Dept. of Surgical Oncology</i></p> <p>www.roswellpark.org / Santosh-Patnaik</p>	<p>Cancer bioinformatics;Cancer biostatistics;Cancer genetics;Cancer molecular epidemiology;Cancer pharmacology and therapeutics;Tumor immunology & immunotherapy;Surgical Oncology;Cancer molecular and cellular biology;Radiation Oncology;Cancer experimental d</p>	<p>Scientific Research</p>	<p>Experimental and computational examination of genes in cancer and immunology</p> <p>We are interested in genetics (gene mutations, gene expression, etc.) and epigenetics (microRNAs, RNA editing, etc.) as it pertains to cancer and the human body's immunological response to it. This is a very broad area, and allows for a visiting student to contribute their ideas to develop an exciting yet feasible project to carry out during their stay.</p> <p>The project work will involve one or more of the following: (1) Cell biology: cell culture, genetic engineering of cells, etc. (2) Molecular biology: various DNA, RNA, and protein assays, including their development. (3) Animal biology: growing foreign tissue/cells in the mouse, analysis of DNA/RNA/proteins of mouse, etc. (4) Patient biology: various assays of diseased tissues, including association with clinical parameters; (5) Computation: large-scale data analysis, data visualization, bioinformatics, software programming, etc.</p> <p>As a mentor, my goal will be to help the visiting student attain the following: (1) Experience these aspects of scientific research: collate facts from published knowledge and knowledgeable individuals; use facts and imagination to generate hypotheses and exploratory ideas; design, prepare for, and execute experiments; collect, analyze, and present data; set forth a future direction. (2) Learn some common biomedical or computational research techniques. (3) Bring to completion during the student's stay a small but independent project that the student helps with the design, execution, and analysis of.</p>
<p>Yue Wu</p> <p><i>Dept. of Urology</i></p> <p>www.roswellpark.org / Yue-Wu</p>	<p>Cancer molecular and cellular biology;Cancer molecular epidemiology;Cancer pharmacology and therapeutics;Cancer prevention and epidemiology;Cancer bioinformatics;Cancer genetics;Urology;Medical Oncology</p>	<p>Scientific Research</p>	<p>Understanding Progression of Prostate Cancer to Castration Re-Current Disease</p> <p>My research interest is in microenvironment of cancer - how cancer cells, endothelial cells and stromal cells interact with each other, and how the interactions affect cancer cell growth. Prostate cancer models are used primarily in my lab. The ultimate goal is to delineate mechanisms that drive progression of androgen-stimulated prostate cancer to castration-resistant prostate cancer, and to identify novel modalities to prevent or treat castration-resistant prostate cancer.</p>