ROSWELL PARK CANCER INSTITUTE

# **2018 Internship Directory:** Summer Research Experience Program in Oncology (12 pages)

| Mentor | Research area(s) | Internship category | Internship description |
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| **Hassan Arshad**<br><br>*Dept. of* ***Head and Neck Surgery***<br><br>**www.roswellpark.org /Hassan-Arshad** | Surgical Oncology | **Clinical Research** | **Clinical outcomes for Head and Neck Cancer treatment**<br>1. retrospective clinical research on Head and Neck Cancer patients, using either national database data or Roswell patient data. The goal will be to publish the research in a peer-reviewed journal. 2. exposure to clinical Head and Neck Surgery (clinic and operating room) |
| **Boyko Atanassov**<br><br>*Dept. of* ***Pharmacology and Therapeutics***<br><br>**www.roswellpark.org /Boyko-Atanassov** | Cancer genetics; Cancer molecular and cellular biology | **Scientific Research** | **Defining the functions of Ubiquitin Specific Proteases in the regulation of Receptor Tyrosine Kinase Signaling Pathways in Cancer**<br>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. |
| **Andrei Bakin**<br><br>*Dept. of* ***Cancer Genetics***<br><br>**www.roswellpark.org /Andrei-Bakin** | Cancer genetics; Cancer molecular and cellular biology | **Scientific Research** | **Tumor-Fibroblast crosstalk In Breast Cancer progression and Tumor Angiogenesis**<br>Tumor microenvironment facilitates cancer recurrence and metastasis, and can reduce the efficacy of anti-cancer therapy. Tumor-infiltrating immune cells and tumor-associated fibroblasts (TAFs) play important roles in disease progression and treatment. We identified a molecular pathway that regulates tumor vascularization and may contribute to trapping of pro-tumorigenic myeloid cells in tumor stroma. The study will assess the contribution of the specific factors into interaction of the tumor-fibroblast crosstalk in cell culture and xenograft mouse models. |

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| **Dhyan Chandra**<br><br>*Dept. of* ***Pharmacology and Therapeutics***<br><br>**www.roswellpark.org /Dhyan-Chandra** | Cancer molecular and cellular biology; Cancer pharmacology and therapeutics | **Scientific Research** | **Role of Mitochondria in Cancer Prevention and Therapy**<br>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, 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 system includes both laboratory cell culture and mouse model of cancer to examine cellular signaling in response to anticancer agents. Our ultimate goal is to target mitochondria and cell death for prevention and therapy of multiple types of cancer. |
| **Subhamoy Dasgupta**<br><br>*Dept. of* ***Cell Stress Biology***<br><br>**www.roswellpark.org /Subhamoy-Dasgupta** | Cancer genetics; Cancer molecular and cellular biology; Cancer pharmacology and therapeutics; Tumor immunology & immunotherapy | **Scientific Research** | **Metabolic Control of Tumor Progression and Metastasis**<br>Metabolic reprogramming is an essential hallmark of tumor progression and metastasis. Cancer cells use altered metabolic pathways to sustain rapid growth and to overcome enormous stress encountered in tumor microenvironment. Tumor cells constantly alter their metabolic state in response to oncogenic stimuli, nutrient availability, and interaction with immune cells however the precise regulation that precedes the metabolic alteration is poorly understood. Our lab uses state-of-art facilities such as metabolomics, proteomics, and genomics along with molecular biology techniques to investigate the crosstalk between metabolic signaling and transcriptional networks. Multiple animal model systems including genetically engineered mouse models (GEMMs), patient-derived xenograft (PDX), and syngeneic tumor models are used to investigate metabolic adaptations that tumor progression and metastasis. Projects: (1) Metabolic adaptations driving castration resistant prostate cancer, (2) Oncogenic drivers of bone metastatic prostate cancer, (3) Mechanisms of breast tumor recurrence and metastasis. |

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| **Todd Demmy**<br><br>*Dept. of* ***Thoracic Surgery***<br><br>**www.roswellpark.org /Todd-Demmy** | Thoracic Surgery; Cancer pharmacology and therapeutics; Other (please specify) | **Clinical Research** | **Pulmonary Suffusion for Metastatic Sarcoma**<br>The goal of this research project will be to study the outcomes of patients who undergo a new minimally invasive form of regional lung chemotherapy to address sarcoma tumors that have spread to the lung. Projects available for participation are designing and assisting in the implementation of a Phase II clinical trial, assessment of outcomes of patients who previously underwent this procedure, and assistance in the design of a new medical device to enable this novel therapy. The work involved will be collection of related articles in this research space, review and abstraction of clinical outcome data, writing and submission of previously unpublished data, and interaction with biomedical engineers regarding catheter design. |
| **John Ebos**<br><br>*Dept. of* ***Medicine***<br><br>**www.roswellpark.org /John-Ebos** | Cancer molecular and cellular biology; Cancer pharmacology and therapeutics; Tumor immunology & immunotherapy; Surgical Oncology | **Scientific Research** | **Resistance and metastasis following tumor microenvironment inhibition**<br>Use of clinically relevant models of spontaneous metastatic disease resistant to antiangiogenic (VEGF pathway) and immunecheckpoint (PD-1 pathway) inhibitors**.** |
| **Michael Feigin**<br><br>*Dept. of* ***Pharmacology and Therapeutics***<br><br>**www.roswellpark.org /Michael-Feigin** | Cancer bioinformatics; Cancer genetics; Cancer molecular and cellular biology; Cancer pharmacology and therapeutics | **Scientific Research** | **G-protein Coupled Receptors In Cancer Progression**<br>Our lab seeks to understand the molecular causes of cancer in order to develop better therapies and improve patient outcome. We employ a variety of methods, from computational analysis to biochemistry, 3D cell culture and mouse models. We are looking for motivated and enthusiastic students to join a new and growing lab. |
| **Michael Fiandalo**<br><br>*Dept. of* ***Urology***<br><br>**www.roswellpark.org /James-Mohler** | Urology | **Scientific Research** | **Inhibition of Dihydrotestosterone Synthesis in Prostate Cancer by Combined Frontdoor and Backdoor Pathway Blockade**<br>Androgen deprivation therapy (ADT) is palliative and prostate cancer (CaP) recurs as lethal castration-recurrent CaP. One mechanism of CaP resistance to ADT is backdoor androgen metabolism. The goal of the summer research project is to assist with identification of small molecules that target enzymes used in the terminal steps in the pathways using ImageStream and immunohistochemistry. |

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| **Katerina Gurova**<br><br>*Dept. of* ***Cell Stress Biology***<br><br>**www.roswellpark.org /Katerina-Gurova** | Cancer molecular and cellular biology; Cancer pharmacology and therapeutics | **Scientific Research** | **Control of chromatin stability in normal and cancer cells**<br>Control of integrity of genetic information in cells includes activation of DNA damage response, DNA-repair pathways and elimination of cells with damaged DNA[1]. The control of the integrity of epigenetic information is equally important and critical for the development and function of multicellular organisms, but far less studied. Epigenetic information is stored as chromatin, the highly organized complex of DNA, histone proteins and their chemical modifications[2]. Accelerated replication and transcription during early embryogenesis and in cancer, resulting in more frequent nucleosome disassembly and enhanced histone turnover, may cause intermixing of histones bearing epigenetic marks and loss of epigenetic information. In cancer, this should lead to the dissolution of original cell identity. However, transcriptome analysis clearly demonstrates that tumors, including cell lines propagated for years in culture, bear easily identifiable traits of tissue of origin in their transcriptional program (TCGA data), which suggests that factors ensuring chromatin stability during early development are activated in cancer to support increased chromatin dynamics. To test this hypothesis, we will optimize methods, used to study of chromatin structure/organization, to measure and compare chromatin stability in normal and tumor cells and to identify factors responsible for the maintenance of epigenetic integrity. These factors may be a source of novel cancer targets. Our data suggest that histone chaperone FACT (FAcilitates Chromatin Transcription) is one such factor[3-7]. We will validate FACT as a chromatin stabilizing factor and cancer treatment target. To understand how epigenetic integrity is preserved, we will use novel tools (small molecules and FACT genetic inhibitors) to controllably disassemble chromatin in cells to study consequences and cell response to chromatin destabilization. Our studies will build a foundation for understanding various phenomena, including the stability of the cell differentiation state, low rate of reprogramming and high sensitivity of tumor cells to chromatin desilencing agents. |

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| **Khurshid Guru**<br><br>*Dept. of* ***Urology***<br><br>**www.roswellpark.org /Khurshid-Guru** | Urology; Medical Oncology; Surgical Oncology; Surgical training, human factors engineering, etc. | **Scientific Research**<br><br>**Clinical Research** | **ATLAS Internship**<br>Specialties: 1) Medicine 2) Engineering 3) Medical Illustration 4) Data Managing Past Intern Accomplishments: 1. Published as co-authors of manuscripts, posters, and presentations in prestigious journals and conferences such as the Journal of Urology, BJUI, IJU, AUA, ERUS, EAU, etc. 2. Develop medical technologies and apply and achieve patents for their inventions 3. Invited to attended and present projects at national conferences 4. Develop patient education tools (Android application) 5. Become a co-consenter in clinical trials where they are able to interact with patients in RPCI clinic 6. Become wet-lab certified to bed-side assist in robotic surgery labs 7. Log hours of OR observation and video classification of real cases 8. Complete the Introduction to Robotic Surgery and Introduction to Laparoscopic Surgery Curriculum (Certification) 9. Learn how to navigate patient records on multiple web-based platforms 10. Learn how to maintain, develop, and manipulate databases for research purposes |

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| **Fumito Ito**<br><br>*Dept. of* ***Immunology***<br><br>**www.roswellpark.org /Fumito-Ito** | Tumor immunology & immunotherapy | **Clinical Research** | **Blood-based T-cell Biomarkers for Prediction of Treatment Response and Early Diagnosis of Immune-related Adverse Events to Immune Checkpoint Inhibitors**<br>Cancer immunotherapies that target the T-cell immune checkpoints, such as CTLA-4, PD-1, and PD-L1 have shown unprecedented success for the treatment of a variety of malignancies. Although a significant number of cancer patients benefit from immune checkpoint inhibitors (CPI), many fail to have clinical responses. Some pretreatment predictors of response to immune checkpoint inhibition have been reported such as PD-L1 expression in tumor cells and the tumor microenvironment (TME), genetic alterations and mutational load in tumor cells, and pre-existing immunity and its enhancement during treatment through tumor-infiltrating immune cells, but there are limitations to tumor site analysis, especially in patients with visceral tumors. Additionally, these therapeutic agents often elicit immune-related adverse events (irAEs) that may result in substantial morbidity. Early intervention can markedly reduce the severity of the irAEs, but biomarkers that allow for their early detection and guide their management are lacking. There is a critical need for blood-based biomarkers to monitor or predict patients' clinical outcome and induction of irAE. Because CPI enhance T-cell responses, we will investigate potential blood-based T-cell biomarkers to predict and monitor treatment response and irAES in patients undergoing treatment with CPI. |

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| **Eric Kauffman**<br><br>*Dept. of* ***Urology***<br><br>**www.roswellpark.org /Eric-Kauffman** | Cancer genetics; Cancer molecular and cellular biology; Cancer pharmacology and therapeutics; Urology; Medical Oncology; Surgical Oncology | **Scientific Research**<br><br>**Clinical Research** | **Clinical research in kidney cancer and prostate cancer patients**<br>This internship involves clinical data abstraction and analysis for patients diagnosed with kidney or prostate cancer at Roswell Park Cancer Institute who have been treated with surgery or managed non-operatively with active surveillance. Comprehensive patient databases within the Department of Urology are already constructed for these patient populations and will be used to assist this research. The student will perform patient chart reviews, clinical data collection and simple data analyses to answer key questions about kidney or prostate cancer patient care. Numerous questions are currently under study, and several different options will be available to for the student to choose from. Most research projects are designed to be completed within the 8-week period, but may require longer periods in some cases. Middle authorship on one or multiple manuscript publications will be awarded to the student if his/her assignment is appropriately completed within the 8-week period (or, if necessary, after the 8-week period). For students who perform well during the 8-week rotation, the unique opportunity for future first-author manuscripts will be discussed if the student wishes to continue with the research after the 8-week period. The mentor will meet regularly with the student throughout the 8-week period and provide close one-on-one guidance. No prior clinical research experience is needed. This internship is an ideal opportunity for the highly motivated medical student who is considering a career in either Urology or Medical Oncology. |
| **Fengzhi Li**<br><br>*Dept. of* ***Pharmacology and Therapeutics***<br><br>**www.roswellpark.org /Fengzhi-Li** | Cancer molecular and cellular biology; Cancer pharmacology and therapeutics; Anticancer drug development and mechanism study | **Scientific Research** | **Study the novel anticancer drug FL118 mechanism of action in pancreatic cancer**<br>The student will be trained for basic technology (e.g. cell culture, western blots, etc.) for studying drug action mechanism. the goal is for<br>the student to be family with lab anticancer drug research.<br>Camptothecin sturcutre-related anticancer drug mechnaim of action in bladder cancer.<br>N/A |
| **Xiang Ling**<br><br>*Dept. of* ***Pharmacology and Therapeutics***<br><br>**www.roswellpark.org /Xiang-Ling** | Cancer molecular and cellular biology; Cancer pharmacology and therapeutics | **Scientific Research** | **Anticancer drug evaluation and mechanism study**<br>Our current research focuses on: the molecular mechanisms of action of FL118, the DMPK profile and potential side effects induced by FL118 treatment. In addition, survivin isoforms perform different functions in distinct subcellular compartments. Type of work involved: cell culture, cell viability assay, western blot, qPCR and animal experiment. |

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| **Asoke Mal**<br><br>*Dept. of* ***Cell Stress Biology***<br><br>**www.roswellpark.org /Asoke-Mal** | Cancer genetics; Cancer molecular and cellular biology; Cancer pharmacology and therapeutics; Pediatrics | **Scientific Research** | **Deciphering the molecular mecanism regulating PAX3-FOXO1 fusion oncoprotein function in childhood muscle cancer alveolar rhabdomyosarcoma**<br>The chromosomal translocation encoding PAX3-FOXO1 fusion transcription factor protein acts as oncogenic drivers for the develoment and prograssion of aggressive alveolar rhabdomyosarcoma (aRMS) in childern and adolescents. Evidence accumulates that fusion-generated gain of PAX3-FOXO1 transcriptional activity aberrantly activates downstream target genes contributing for its oncogenic activity in aRMS. Our recent studies have discovered a functional impact of alteration of Akt signaling pathway in modulating PAX3-FOXO1 function in aRMS malignant behaviros.. Akt, a protein serine/threnine kinase presents in three isorms; Akt1, Akt2 and Akt3 and exhibit differential biological roles in modulating tumor properties associated with growth and progression.We plan to investigate the role of Akt isoforms in controlling PAX3-FOXO1-associated aRMS malignant phenotypes. Our effort on this study will be key to the novel understanding of the complexity Akt isoforms in the regulation of PAX3-FOXO1-associated aRMS malignant behavior, and importantly may provide new insight for the development of therapeutic approachs for this disease. |
| **Kent Nastiuk**<br><br>*Dept. of* ***Cancer Genetics and Genomics, Urology***<br><br>**www.roswellpark.org /Kent-Nastiuk** | Cancer experimental diagnostics; Cancer genetics; Cancer molecular and cellular biology; Cancer pharmacology and therapeutics; Urology | **Scientific Research** | **Signaling in androgen deprivation therapy for prostate cancer**<br>My lab is investigating how androgen regulated growth and apoptosis signaling pathways are changed in prostate cells in culture, in mouse models and in patient samples of prostate disease (BPH, inflammation, cancer). Since androgen deprivation therapy (ADT) is the principal treatment for advanced prostate cancer, and when administered for extended periods causes frailty, a major focus is examining the mechanism of ADT-induced muscle loss. We use a broad range of techniques from whole animal imaging to protein biochemistry to gene expression analysis to determine mechanism in order to develop better therapies for prostate diseases. |
| **Vishala Neppalli**<br><br>*Dept. of* ***Pathology***<br><br>**www.roswellpark.org /Vishala-Neppalli** | Cancer biostatistics; Cancer genetics; Cancer molecular and cellular biology; Cancer molecular epidemiology; Medical Oncology | **Scientific Research**<br><br>**Clinical Research** | **Clinical, morphologic, immunophenotypic, and genetic characteristics of lymphoid neoplasms. Existing data review of lymphoid neoplasms with clinical outcomes.** |

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| **Chukwumere Nwogu**<br><br>*Dept. of* ***Surgical Oncology***<br><br>**www.roswellpark.org /Chukwumere-Nwogu** | Surgical Oncology | **Clinical Research** | **Outcomes of Robotic Thoracic Surgery**<br>This will involve clinical review of trends and outcomes of robot-assisted thoracic surgery procedures. Review of operative records, electronic charts and follow-up information will be required. |
| **Scott Olejniczak**<br><br>*Dept. of* ***Immunology***<br><br>**www.roswellpark.org /Scott-Olejniczak** | Cancer molecular and cellular biology; Tumor immunology & immunotherapy | **Scientific Research** | **Harnessing the power of microRNAs to improve tumor immunotherapy**<br>MicroRNAs are small non-coding RNAs that function to repress expression of target genes and thereby possess the ability to fundamentally alter how cells behave. We hope to co-opt this ability of microRNAs in order to enhance the immune response to tumor cells. A common means by which tumor cells evade immune cell killing is by signaling to immune cells through so called checkpoint molecules that repress the ability of these immune cells to function. We believe that certain microRNAs have the ability to instruct immune cells to ignore checkpoint molecule signals and therefore kill tumor cells more effectively. A major challenge, however, is to determine which microRNAs possess this ability. Summer interns will participate in screening of many known microRNAs for their ability to limit repressive signals propagated by checkpoint molecules. These studies will expose students to translational research in a basic laboratory setting with a focus on immunology, cell biology and molecular biology. |

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| **Santosh Patnaik**<br><br>*Dept. of* ***Surgical Oncology***<br><br>**www.roswellpark.org /Santosh-Patnaik** | 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 exper | **Scientific Research** | **Experimental and computational examination of genes in cancer and immunology**<br>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.<br>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.<br>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. |
| **Denise Rokitka**<br><br>*Dept. of* ***Pediatrics***<br><br>**www.roswellpark.org /Denise-Rokitka** | Pediatrics; Cancer survivorship | **Clinical Research** | **Pediatric Clinical Survivorship**<br>Long term emotional and physical side effects of pediatric cancer survivors. Data management, data collection. |

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| **Mukund Seshadri**<br><br>*Dept. of* ***Oral Medicine/Head and Neck Surgery***<br><br>**www.roswellpark.org /Mukund-Seshadri** | Cancer biophysics; Cancer pharmacology and therapeutics; Radiation Oncology; Cancer experimental diagnostics; Cancer prevention and epidemiology | **Scientific Research** | **Multi-modal Imaging of Cancer**<br>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. |
| **Gal Shafirstein**<br><br>*Dept. of* ***Cell Stress Biology***<br><br>**www.roswellpark.org /Gal-Shafirstein** | Photodynamic Therapy | **Scientific Research** | **Treatment Planning and Light Dosimetry in Photodynamic Therapy (PDT)**<br>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 2 pre-doctoral student. We do preclinical and clinical studies, and investigate combination therapies. |
| **Joseph Skitzki**<br><br>*Dept. of* ***Immunology***<br><br>**www.roswellpark.org /Joseph-Skitzki** | Tumor immunology & immunotherapy; Surgical Oncology | **Scientific Research**<br>**Clinical Research** | **Real-time Monitoring of Anti-cancer Immune Responses**<br>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:<br>1. To evaluate reagents for human lymphocyte labeling<br>2. To determine if endogenous lymphocyte activity can be followed over time in mouse models<br>3. To develop analytical methods for intravital microscopy<br><br>**Observership in Surgical Oncology**<br>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) |

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| **Xinjiang Wang**<br><br>*Dept. of* ***Pharmacology and Therapeutics***<br><br>**www.roswellpark.org /Xinjiang-Wang** | Cancer genetics; Cancer pharmacology and therapeutics | **Scientific Research** | **Development of Novel Targeted Therapies for Leukemia Treatment**<br>The goal of this study is to evaluate the antitumor effect of newly identified small molecule inhibitors for Mdm2-MdmX E3 in leukemia cells. Single or combination treatment will be tested. Cell proliferation and cell death will be analyzed. Cell culture, cell growth assay, Western blotting analysis of target proteins and biochemical events of apoptosis will be performed. |
| **Eunice Wang**<br><br>*Dept. of* ***Medicine***<br><br>**www.roswellpark.org /Eunice-Wang** | Cancer pharmacology and therapeutics; Medical Oncology; Cancer molecular and cellular biology; Tumor immunology & immunotherapy | **Scientific Research** | **Novel Biological Therapies for Acute Leukemia**<br>Our research focuses on the preclinical assessment and development of novel therapeutic strategies for acute leukemia. We are specifically interested in how interactions between tumor cells and other elements of the host marrow microenvironment contribute to cancer cell survival and therapeutic resistance. Current projects in the lab are focused on optimizing immunotherapy for acute myeloid leukemia and evaluation of antibody drug conjugates targeting CD33 and CD123 expressed on leukemia cells. Students will gain experience in sterile cell culture, proliferation assays, colony formation assays using primary leukemia patient samples, flow cytometry, and bioluminescent mouse models. The goal of our translational laboratory research is to identify immunotherapeutic and biological agents for translation into early stage clinical trials. |
| **Binnian Wei**<br><br>*Dept. of* ***Cancer Prevention and Population Sciences***<br><br>**www.roswellpark.org /Binnian-Wei** | marijuana and tobacco specific - biomarker measurement; Cancer biostatistics; Cancer prevention and epidemiology | **Scientific Research** | **Developing and Optimizing Automated Sample Preparation Methods for Measuring Tobacco- and Marijuana-Specific Biomarkers in Human Samples**<br>Qualified candidates will work with the scientists in our lab to develop and optimize high throughput automated methods that use cutting-edge liquid-handling workstation for quantifying tobacco and marijuana specific biomarkers, i.e. nicotine, cannabinoids and their metabolites in human samples. |

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| **Lei Wei**<br><br>*Dept. of* ***Bioinformatics/Biostatistics***<br><br>**www.roswellpark.org/Lei-Wei** | Cancer bioinformatics; Cancer genetics | **Scientific Research** | **Identifying driver mutations by using next generation sequencing (NGS)**<br>Next generation sequencing (NGS) is providing an efficient system for characterizing cancer genomes. By comparing with the matched normal DNA, we can identify additionally acquired mutations, so called somatic mutations in cancers. Certain somatic mutations may directly contribute to tumorigenesis process by disrupting tumor suppressors or activating oncogenes. Identifying such driver mutations is an important step for understanding the mechanism of cancers and facilitating the development of personalized treatments. The current research will work on the somatic mutations found by NGS in various cancer types. The trainee will be expected to: 1) develop a good understanding of cancer NGS data; 2) by doing literature search and data-mining, identify novel mutations/mechanisms that may contribute to tumor initiation, progression and recurrence; 3) contribute to scientific publications. |
| **Yue Wu**<br><br>*Dept. of* ***Urology***<br><br>**www.roswellpark.org/Yue-Wu** | Cancer molecular and cellular biology; Cancer molecular epidemiology; Cancer pharmacology and therapeutics; Cancer prevention and epidemiology; Cancer bioinformatics; Cancer genetics; Urology; Medical Oncology | **Scientific Research** | **Understanding Progression of Prostate Cancer to Castration Re-Current Disease**<br>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. |

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| **Sai Yendamuri**<br><br>*Dept. of* ***Thoracic Surgery***<br><br>**www.roswellpark.org /Sai-Yendamuri** | Surgical Oncology | **Scientific Research Clinical Research** | **Does post-operative pneumonia impact oncological outcomes?**<br>Goal: The goal of the project is to examine the association of postoperative pneumonia on overall survival and cancer specific survival in patients undergoing surgery for cancer. Work involved includes collating data from various institutional databases, retrospective chart review and writing an abstract for presentation at a national meeting.<br>Does post-operative pneumonia impact oncological outcomes?<br>Goal: The goal of the project is to examine the association of postoperative pneumonia on overall survival and cancer specific survival in patients undergoing surgery for cancer. Work involved includes collating data from various institutional databases, retrospective chart review and writing an abstract for presentation at a national meeting. |
| **Yuesheng Zhang**<br><br>*Dept. of* ***Pharmacology and Therapeutics***<br><br>**www.roswellpark.org /Yuesheng-Zhang** | Cancer pharmacology and therapeutics | **Scientific Research** | **Targeting ErbB receptor tyrosine kinases in cancer**<br>Cell membrane-bound ErbB receptor tyrosine kinases, particularly ErbB1 and ErbB2, are major oncogenic drivers and cancer therapeutic targets. We have recently found that a novel human protein targets both ErbB1 and ErbB2 and are doing research to better understand its antitumor activity. |
| **Jianmin Zhang**<br><br>*Dept. of* ***Cancer Genetics***<br><br>**www.roswellpark.org /Jianmin-Zhang** | Cancer genetics; Cancer molecular and cellular biology | **Scientific Research** | **Dysregulation of Hippo pathway signaling in breast cancer**<br>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. |