

Table of Contents

Mentor	Department	Research Project	Pg
Song Liu	Biostatistics & Bioinformatics	Cancer Bioinformatics for Immuno-Oncology	2
Lei Wei	Biostatistics & Bioinformatics	Identifying driver mutations by using next generation sequencing (NGS)	2
Li Yan	Biostatistics & Bioinformatics		2
Maciej Goniewicz #	Cancer Prevention and Population Sciences	Safety of electronic cigarettes	3
Richard O'Connor #	Cancer Prevention and Population Sciences	Consumer responses to flavored tobacco products	3
Anna Bianchi-Smiraglia	Cell Stress Biology	GTP metabolism in breast cancer	4
Eugene Kandel	Cell Stress Biology	Cell stress response pathways as new therapeutic targets.	5
Gal Shafirstein	Cell Stress Biology	Treatment Planning and Light Dosimetry in Photodynamic Therapy (PDT)	6
Amanda Quisenberry	Health Behavior	Tobacco Product Consumption under Hypothetical Flavor Policy Environments Using Behavioral Economic and Eye Tracking Methods	6
Ethan Abel	Molecular and Cellular Biology	Epigenetic targeting of pancreatic cancer stem cells	7
Nitai Hait	Molecular and Cellular Biology	Mechanisms by which sphingolipid mediators impact tumor progression and metastasis	8
Mukund Seshadri	Oral Medicine/Head and Neck Surgery	Multi-modal Imaging of Cancer	8
Dhyan Chandra	Pharmacology and Therapeutics	Mitochondrial Regulation of Cell Death and Resistance in Cancer	9
Gokul Das	Pharmacology and Therapeutics	Mechanisms by which Hormone Receptors and Tumor Suppressors Impact Cancer	10
Xinjiang Wang	Pharmacology and Therapeutics	Development of Novel Targeted Therapies for Leukemia Treatment	11
Harish Malhotra	Radiation Medicine	Evaluation of the accuracy of various dose computation algorithms for lung Stereotactic Body Radiotherapy	11
Matthew Podgorsak	Radiation Medicine	Medical Physics applications	12
Yue Wu	Urology	Understanding Progression of Prostate Cancer to Castration Re-Current Disease	12
#- Participating also as mentor in CROFTs Program			

Mentor	Research Areas	Project description
<p>Song Liu <i>Dept. of Bioinformatics/Biostatistics</i></p> <p>www.roswellpark.org/Song-Liu</p> <p>CSTEP Peer-to-Peer Program? No</p> <p>Mentoring style- <i>lead by example; team work</i></p> <p>Expectations of summer student- <i>self-motivated; team player</i></p>	<p>Scientific Research Clinical Research</p> <p>Cancer bioinformatics; Cancer genetics; Tumor immunology & immunotherapy</p>	<p>Cancer Bioinformatics for Immuno-Oncology As the sole data coordination center for the prestigious NCI Cancer Moonshot Immuno-Oncology Translational Network (IOTN, https://www.iotnmoonshot.org), we have a number of exciting cancer bioinformatics projects in the cutting edge field of immuno-oncology.</p> <p>Project phase: Elements of all three (Design, Discovery, Validation)</p>
<p>Lei Wei <i>Dept. of Bioinformatics/Biostatistics</i></p> <p>www.roswellpark.org/Lei-Wei</p>	<p>Scientific Research Clinical Research</p> <p>Cancer bioinformatics; Cancer genetics</p>	<p>Identifying driver mutations by using next generation sequencing (NGS) 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.</p>
<p>Li Yan <i>Dept. of Bioinformatics/Biostatistics</i></p> <p>www.roswellpark.org/Lei-Wei</p> <p>Mentoring Style- Lead by example</p> <p>Expectations of summer student- Self-motivated & Team player</p>	<p>Scientific Research Clinical Research</p> <p>Cancer bioinformatics; Cancer genetics</p>	<p>Translational Bioinformatics; Computational Oncology We will offer a number of Translational Bioinformatics & Computational Oncology projects, leveraging our recently funded NCI Cancer Moonshot Immuno-Oncology Translational Network (IOTN, https://www.iotnmoonshot.org/).</p> <p>Project Phase- Elements of all three (Design, Discovery, Validation)</p>

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<p>Maciej Goniewicz</p> <p><i>Dept. of Cancer Prevention and Population Sciences</i></p> <p>www.roswellpark.org/Maciej-Goniewicz</p> <p>Mentoring style- <i>Meetings in person at least once a week to discuss progress and challenges in experiments. Weekly presentations to my lab team. Meetings in person to discuss conference submission.</i></p> <p>Expectations of summer student- <i>Conduct a pilot experiments. Collect the preliminary data. Prepare and submit at least one abstract for scientific conference or one manuscript for peer-reviewed journal.</i></p>	<p>Scientific Research</p> <p>Cancer prevention and epidemiology; Public Health</p>	<p>Safety of electronic cigarettes</p> <p>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>Project phase: Elements of all three (Design, Discovery, Validation)</p>
<p>Richard O'Connor</p> <p><i>Dept. of Cancer Prevention and Population Sciences</i></p> <p>www.roswellpark.org/Richard-O'Connor</p> <p>Mentoring style- <i>I allow and expect interns to work independently. I will set up weekly meetings to discuss goals and progress.</i></p> <p>Expectations of summer student- <i>I expect interns to produce high-quality work product in a professional manner. Interns should take direction and work on tasks diligently, and ask questions when unsure of how to proceed.</i></p>	<p>Scientific Research</p> <p>Cancer prevention and epidemiology; Regulatory Science</p>	<p>Consumer responses to flavored tobacco products</p> <p>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>Project phase: Discovery- initial probing of scientific problem using established methods with a concentration on techniques, data analysis</p>

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<p>Anna Bianchi-Smiraglia</p> <p><i>Dept. of Cell Stress Biology</i></p> <p>www.roswellpark.org/Anna-Bianchi-Smiraglia</p> <p>Mentoring style- <i>Open door policy for any question, suggestion, issue, etc. Ready to lend a hand when needed but not constantly over people shoulder. Promoting independence and critical thinking</i></p> <p>Expectations of summer student- <i>To be curious about science and the work being performed. To be responsible and committed. To work with integrity and as a team player.</i></p>	<p>Scientific Research</p> <p>Cancer molecular and cellular biology</p>	<p>GTP metabolism in breast cancer</p> <p>Our lab research focuses on understanding how a basic metabolism to produce GTP (one of the building block of the nucleic acids) is distorted by tumor cells to promote invasion and metastasis. We are especially interested in the role of the GTP biosynthesis rate-limiting enzyme IMPDH2 as a promoter of tumor progression. We have created several mutants of IMPDH2 (catalytic inactive, tagged to different subcellular compartments, phosphomutants, etc) and we will perform an array of molecular biology experiments to characterize the effects of such manipulations in term of cytoskeleton remodeling, invasive capability and signaling. Western blot, qRT-PCR and immunofluorescence imaging are some of the techniques that will be employed to answer our questions.</p> <p>N?A N/A</p> <p>Project phase: Discovery- initial probing of scientific problem using established methods with a concentration on techniques, data analysis</p>

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<p>Eugene Kandel <i>Dept. of Cell Stress Biology</i></p> <p>www.roswellpark.org/Eugene-Kandel</p> <p>Mentoring style- <i>I am indebted to many people who provided me with research opportunities and nurtured my scientific exploits since my middle-school days to the present. I believe that my responsibility is to pay it forward. I am willing to share my time, knowledge and other resources with aspiring young scientists who are self-motivated, honest, eager to learn and ready to work for their goals.</i></p> <p>Expectations of summer student- <i>A self-motivated individual, interested in a career as a biomedical scientist and willing to invest more than a nominally required effort into this research opportunity. Intellectual curiosity, independent thought, perseverance and dependability are expected.</i></p>	<p>Scientific Research</p> <p>Cancer molecular and cellular biology; Cancer pharmacology and therapeutics; Cancer genetics</p>	<p>Cell stress response pathways as new therapeutic targets. We study cell stress responses in order to improve protection of normal cells and uncover vulnerabilities in cancers. We use cell culture, genetic engineering, pharmacological and biophysical treatment of mammalian cells, as well as biochemical analysis of cell functions and individual gene expression. Current topics of research include :</p> <ol style="list-style-type: none"> 1. Resistance and sensitivity to targeted therapies in melanoma. 2. The status of stress-response pathways as a predictor of outcomes in lung cancer. 3. The mechanisms of resistance to oxygen and nutrient deprivation in mammalian cells. <p>Project phase: Elements of all three (Design, Discovery, Validation)</p>

Mentor	Research Areas	Project description
<p>Gal Shafirstein <i>Dept. of Cell Stress Biology</i></p> <p>www.roswellpark.org/Gal-Shafirstein</p> <p>Mentoring style- <i>A teamwork that includes students, faculty and outside collaborators. Use weekly lab meetings for reporting results, presentation of new ideas. I have an open-door policy for research discussions as needed.</i></p> <p>Expectations of summer student- <i>Conduct experiments with supervision from graduate students in the lab. Document the work done. Record results. Present results and plans in our weekly lab meetings.</i></p>	<p>Scientific Research</p> <p>Photodynamic Therapy; Cancer biophysics</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>Project phase: Elements of all three (Design, Discovery, Validation)</p>
<p>Amanda Quisenberry <i>Dept. of Health Behavior</i></p> <p>www.roswellpark.org/Amanda-Quisenberry</p> <p>Mentoring style- <i>I am an interactive, involved mentor with a desire to share my work and motivate young investigators.</i></p> <p>Expectations of summer student- <i>The summer intern will be trained in using behavioral economic and eye tracking methodologies, how to collect quality data from human participants, and how to clean and organize data for analysis. The opportunity for data analysis and manuscript preparation exists based on interest and skill level.</i></p>	<p>Scientific Research</p> <p>Cancer prevention and epidemiology</p>	<p>Tobacco Product Consumption under Hypothetical Flavor Policy Environments Using Behavioral Economic and Eye Tracking Methods The goal of this project is to identify the behaviors of menthol smokers when various hypothetical tobacco flavor policies are enacted using the Experimental Tobacco Marketplace. Eye tracking methodology is enacted simultaneously, measuring objective attention to product components while purchasing under these conditions. Research tasks will include collecting and analyzing data with opportunity for manuscript preparation. Involvement in other ongoing studies of the behavioral economics of tobacco products is also possible.</p> <p>Project phase: Elements of all three (Design, Discovery, Validation)</p>

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<p>Ethan Abel</p> <p><i>Dept. of Molecular and Cellular Biology</i></p> <p>www.roswellpark.org/Ethan-Abel</p> <p>Mentoring style- <i>As a new investigator, my mentoring approach is very hands-on. I typically go into great detail with trainees as to what the hypothesizes we are trying to answer are, what techniques we will use to answer it and why, and the actual principles behind the techniques. I typically demonstrate techniques first, followed allowing students to do techniques in supervised manner until they are proficient, but remain regularly within reach for experimental guidance, technical support, or anything else a student has questions regarding.</i></p> <p>Expectations of summer student- <i>By the end of their time in the lab a summer student should be able to become proficient in a small number of routinely used techniques/approaches and with guidance/supervision carry out a set of pre-designed experiments in a reproducible manner so that some conclusions regarding the questions behind the experiments can be confidently made. Students should gain a general/basic understanding of field the lab is in and the lab's overall research interests/goals and a solid understanding of why the experiments they are conducting are being done. I expect all trainees to be excited, hardworking, careful, honest, and mutually respectful so as to promote and maintain a collaborative work environment that conducts high-quality science at all times.</i></p>	<p>Scientific Research</p> <p>Cancer molecular and cellular biology; Cancer pharmacology and therapeutics</p>	<p>Epigenetic targeting of pancreatic cancer stem cells</p> <p>Students will test the effects of drugs called BET-inhibitors on pancreatic cancer stem cells (PCSCs), which are a subtype of cancer cell that fuels the tumor, as well as the interplay between BET-inhibitors and proteins that drive PCSCs. Students will use human cancer cells as models, and utilize protein, RNA, and DNA analyses in their studies.</p> <p>Project phase: Elements of all three (Design, Discovery, Validation)</p>

Mentor	Research Areas	Project description
<p>Nitai Hait</p> <p><i>Dept. of Molecular and Cellular Biology</i></p> <p>www.roswellpark.org/Nitai-Hait</p> <p>Mentoring style- <i>As a mentor, I will be supportive and enthusiastic with students. I will help students generating a hypothesis, exploratory ideas, designing and execute experiments, collect data, analyze and present data, finally, a publishable figure.</i></p> <p>Expectations of summer student- <i>During the internship, the student should have the motivation to learn, gathering knowledge, and hands-on experiences.</i></p>	<p>Scientific Research</p> <p>Cancer molecular and cellular biology; Cancer pharmacology and therapeutics</p>	<p>Mechanisms by which sphingolipid mediators impact tumor progression and metastasis</p> <p>My research interests focus on the role of sphingolipid mediators, sphingosine-1-phosphate (S1P) and ceramide-1-phosphate (C1P) in breast cancer progression and metastasis. We use patient-derived 3D cell models, molecular biology techniques, and genetic animal models to study sphingolipid mediators signaling in inflammation and cancer. Significant projects: i) to determine the role of S1P as a cofactor in regulating master transcription factors (HIFs, STATs, NF-kB) functions in cancer; ii) to determine the role of C1P/ceramide kinase in tumor metastasis; iii) to determine the role of sphingolipid mediators in the tumor microenvironment and metastasis. We have a variety of small projects on the role of mediator signaling in the tumor microenvironment and metastasis suitable for students. Student can be a co-author for peer-review publications.</p> <p>Project phase: Validation- confirming previous data/results with a concentration on techniques, data interpretation and science reporting; potential for contributing to a scientific paper</p>
<p>Mukund Seshadri</p> <p><i>Dept. of Oral Medicine/Head and Neck Surgery</i></p> <p>www.roswellpark.org/Mukund-Seshadri</p> <p>Mentoring style-</p> <p>Expectations of summer student-</p>	<p>Scientific Research Clinical Research</p> <p>Cancer biophysics; Cancer pharmacology and therapeutics; Radiation Oncology; Cancer experimental diagnostics; Cancer prevention and epidemiology</p>	<p>Multi-modal Imaging of Cancer</p> <p>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>Project phase: Validation- confirming previous data/results with a concentration on techniques, data interpretation and science reporting; potential for contributing to a scientific paper</p>

Mentor	Research Areas	Project description
<p>Dhyan Chandra</p> <p><i>Dept. of Pharmacology and Therapeutics</i></p> <p>www.roswellpark.org/Dhyan-Chandra</p> <p>Mentoring style- <i>Provide opportunities to brainstorm ideas. Encourage student to ask questions. Guide student to develop collaborative skills to understand scientific research project.</i></p> <p>Expectations of summer student- <i>I expect summer student to learn new ideas and approaches. I expect them to brainstorm these ideas/approaches during lab meeting or discussion. These activities will help student developing independent thinking in scientific research.</i></p>	<p>Scientific Research</p> <p>Cancer molecular and cellular biology; Cancer pharmacology and therapeutics; Urology</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>Project phase: Discovery- initial probing of scientific problem using established methods with a concentration on techniques, data analysis</p>

Mentor	Research Areas	Project description
<p>Gokul Das</p> <p><i>Dept. of Pharmacology and Therapeutics</i></p> <p>www.roswellpark.org/Gokul-Das</p> <p>Mentoring style- <i>I motivate the students to think. Myself and senior people in the laboratory will discuss the project and guide you through the experiments on the bench. Students are encouraged to present their experimental data (whether the experiment succeeds or fail at times) at the weekly lab meetings. The lab meetings are semi-formal with all members participating in open discussions and brainstorming.</i></p> <p>Expectations of summer student- <i>The student should be highly motivated and inquisitive and be willing to read research publications relevant to the topic of research. The student should attend the weekly laboratory meeting. The student should maintain detailed records of the laboratory experiments on a daily basis.</i></p>	<p>Scientific Research</p> <p>Cancer genetics; Cancer molecular and cellular biology; Cancer pharmacology and therapeutics</p>	<p>Mechanisms by which Hormone Receptors and Tumor Suppressors Impact Cancer</p> <p>The research in Das lab focuses on understanding the cellular and molecular mechanisms of cancer, especially breast ,lung, and ovarian cancers and how to exploit them for developing new therapeutic strategies. For example, we are analyzing the role of hormone receptors (such as the estrogen receptor) and tumor suppressors (such as the p53 protein) in cancer onset and progression using cell culture and mouse genetic models. Summer projects will involve modern cellular and molecular biological techniques.</p> <p>Project phase: Elements of all three (Design, Discovery, Validation)</p>

Mentor	Research Areas	Project description
<p>Xinjiang Wang</p> <p><i>Dept. of Pharmacology and Therapeutics</i></p> <p>www.roswellpark.org/Xinjiang-Wang</p> <p>Mentoring style- <i>educator and challenger for problem-solving capabilities</i></p> <p>Expectations of summer student- <i>sincere interest in cancer science, strictly following instructions, actively asking questions</i></p>	<p>Scientific Research</p> <p>Cancer genetics; Cancer pharmacology and therapeutics; Cancer molecular and cellular biology</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> <p>Project phase: Elements of all three (Design, Discovery, Validation)</p>
<p>Harish Malhotra</p> <p><i>Dept. of Radiation Medicine</i></p> <p>www.roswellpark.org/Harish-Malhotra</p> <p>Mentoring style- <i>Very informal but provide lot of support during the internship.</i></p> <p>Expectations of summer student- <i>The summer student should have aptitude to learn something new. Working knowledge of Excel needed, some statistical indices like t-test etc. will be desirable.</i></p>	<p>Scientific Research</p> <p>Radiation Oncology</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>Project phase: Discovery- initial probing of scientific problem using established methods with a concentration on techniques, data analysis</p>

Mentor	Research Areas	Project description
<p>Matthew Podgorsak <i>Dept. of Radiation Medicine</i> www.roswellpark.org/Matthew-Podgorsak CSTEP Peer-to-Peer Program? No Mentoring style- <i>Supportive style giving mentee significant ability to develop methods of study independently.</i> Expectations of summer student- <i>Student should be engaged and should have a strong work ethic so that he/she can honestly say that the experience was worthwhile and that something was learned.</i></p>	<p>Scientific Research Radiation Oncology; Medical Physics</p>	<p>Medical Physics applications 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. Project phase: Elements of all three (Design, Discovery, Validation)</p>
<p>Yue Wu <i>Dept. of Urology</i> www.roswellpark.org/Yue-Wu Mentoring style- <i>i would like to mentor through active discussions, and would like the student to be able to bring their own questions to the discussions.</i> Expectations of summer student- <i>A summer student would be an active thinker, and has basic skills to manage PowerPoint and Excel.</i></p>	<p>Scientific Research 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>Understanding Progression of Prostate Cancer to Castration Re-Current Disease 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. Project phase: Discovery- initial probing of scientific problem using established methods with a concentration on techniques, data analysis</p>