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Andrei Bakin	Cancer Genetics, Genomics and Development	Novel therapeutic strategies for cancer-specific genetic abnormality and immune microenvironment	4
Maansi Bansal Travers	Health Behavior	Understanding the impact of tobacco waste pollution	5
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Mentor	Research Areas	Project description
<p>Ethan Abel</p> <p><i>Dept. of Molecular and Cellular Biology</i></p> <p>www.roswellpark.org/Ethan-Abel</p> <p>CSTEP Peer-to-Peer Program? Yes</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 hypotheses 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 (generally 5 or less), and with guidance/supervision carry out a set of pre-designed experiments in a reproducible manner (at least 3 times) so that some conclusions regarding the questions behind the experiments can be confidently made (e.g. results support or refute the hypothesis). 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 (e.g. what is their project about). I expect all trainees to be excited, hardworking, careful, honest, and mutually respectful so as to promote and maintain a</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>

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<p><i>collaborative work environment that conducts high-quality science at all times.</i></p>		
<p>Boyko Atanassov</p> <p><i>Dept. of Pharmacology and Therapeutics</i></p> <p>www.roswellpark.org/Boyko-Atanassov</p> <p><i>CSTEP Peer-to-Peer Program? No</i></p> <p>Mentoring style-</p> <p>Expectations of summer student-</p>	<p>Scientific Research</p> <p>Cancer genetics; Cancer molecular and cellular biology</p>	<p>Defining the functions of Ubiquitin Specific Proteases in the regulation of Receptor Tyrosine Kinase Signaling Pathways in Cancer</p> <p>Abnormal expression of several cell growth-promoting factors, such as receptor tyrosine kinases (RTKs) and cyclins, has been recognized as a critical factor driving tumor progression and resistance to therapy. Work in our laboratory is focused on elucidating the molecular mechanisms by which ubiquitin-specific proteases (USPs) are involved in stabilizing these factors in cancer cells, hence potentiating tumor growth.</p> <p>Project phase: Elements of all three (Design, Discovery, Validation)</p>
<p>Andrei Bakin</p> <p><i>Dept. of Cancer Genetics</i></p> <p>www.roswellpark.org/Andrei-Bakin</p> <p><i>CSTEP Peer-to-Peer Program? No</i></p> <p>Mentoring style- <i>I have mentored over 20 summer students for the past 15 years participating in the program. I provide general guidance, my graduate students and a lab manager will help in planning, performing, and analysis of specific experimental techniques.</i></p> <p>Expectations of summer student- <i>na</i></p>	<p>Scientific Research</p> <p>Cancer genetics; Cancer molecular and cellular biology; Tumor immunology & immunotherapy; Cancer pharmacology and therapeutics</p>	<p>Novel therapeutic strategies for cancer-specific genetic abnormality and immune microenvironment</p> <p>Metastatic breast cancer (MBC) is a deadly disease and novel therapeutic approaches are urgently needed. The first project deals with tumor-immune interplay. The tumor microenvironment (TME) has evolved as a complex and dynamic network of intercellular interactions that influences tumor formation, progression, and response to therapy. To this end, we identified a specific signaling pathway that controls immune composition in the TME. The goal of the project is to define the impact of systemic blockade of this pathway on immune cell composition in MBC models in mice.</p> <p>The second project investigates novel combination therapies for cancers with a genetic alteration in the p53 tumor suppressor using breast, pancreatic, and colon cancer models. The goal is to develop a drug combination therapy that selectively damages p53-deficient cancers.</p> <p>Students will become familiar with the following techniques: mammalian cell culture, immunoblotting (western), quantitative PCR, flow cytometry, microscopy (bright field and IF), CRISPR technology, single cell RNA sequencing; potentially with animal studies using mouse and patient-derived material (PDX).</p> <p>Project phase: Elements of all three (Design, Discovery, Validation)</p>

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<p>Maansi Bansal Travers</p> <p>Dept. of <i>Health Behavior</i></p> <p>www.roswellpark.org/Maansi-Bansal-Travers</p> <p>CSTEP Peer-to-Peer Program? No</p> <p>Mentoring style- <i>I am here to teach but also expect a certain level of initiation by the student to keep the work moving forward.</i></p> <p>Expectations of summer student- <i>The student will bring enthusiasm to learn and a commitment to participate and engage in the project.</i></p>	<p>Scientific Research</p> <p>Cancer prevention and epidemiology</p>	<p>Understanding the impact of tobacco waste pollution</p> <p>This work will examine the impact of tobacco waste pollution on our environment, including understanding perceptions of smokers and vapers on disposal of products and the prevalence of inappropriate disposal.</p> <p>Project phase: Elements of all three (Design, Discovery, Validation)</p>
<p>Joseph Barbi</p> <p>Dept. of <i>Immunology</i></p> <p>www.roswellpark.org/Joseph-Barbi</p> <p>CSTEP Peer-to-Peer Program? Yes</p> <p>Mentoring style- <i>Moderate hands-on technical training coupled with an emphasis on independent thought and interest-driven project steering.</i></p> <p>Expectations of summer student- <i>Learn cutting edge and proven techniques and become familiar with primary scientific literature pertinent to the project. Perform experiments, collect data, and assist in the analysis of results.</i></p>	<p>Scientific Research</p> <p>Tumor immunology & immunotherapy</p>	<p>Exploring the mechanisms and therapeutic modulation of immune response control in cancer</p> <p>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>Project phase: Elements of all three (Design, Discovery, Validation)</p>
<p>Dhyan Chandra</p> <p>Dept. of <i>Pharmacology and Therapeutics</i></p> <p>www.roswellpark.org/Dhyan-Chandra</p>	<p>Scientific Research</p> <p>Cancer molecular and cellular biology; Cancer</p>	<p>Mitochondrial Regulation of Cell Death and Resistance in Cancer</p> <p>The main focus of our research is to define the role of mitochondrial biology in cancer and understand the molecular basis of therapeutic resistance in multiple types of cancer including in prostate, pancreatic, breast, and colon cancers. We are working on several interconnected and</p>

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<p>CSTEP Peer-to-Peer Program? Yes 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 students to learn new ideas and approaches. I expect them to brainstorm these ideas/approaches during laboratory meeting or discussion. These activities will help student developing independent thinking process in scientific research.</i></p>	<p>pharmacology and therapeutics;Urology</p>	<p>complementary research projects. The first project defines the role of mitochondrial unfolded protein response in cancer progression and development of therapeutic resistance in cancer patients. The second project delineates how mitochondria-mediated cell death signaling is defective in cancer cells and cancer stem cells. The third project characterizes the role of mitochondria in cancer health disparities among Americans. We also investigating the role of mitochondrial dysfunction in age-related neurodegenerative diseases and drug abuse. Our research suggests that deregulation of protein complexes contributes to tumor progression and therapeutic resistance in cancer. We use multiple biochemical, genetic, cellular, patient-derived cancer models, mouse models of cancer, clinical, and molecular approaches to identify and characterize protein complexes in subcellular compartments including in mitochondria. We envision that detailed understanding of protein complexes will lay a foundation for targeting mitochondria, cell death, and survival machineries for better therapeutic outcomes in cancer patients. Our ultimate goals are to understand the mitochondrial biology and identify novel targets for prevention and treatment of multiple types of cancer as well as other age-related diseases.</p> <p>Project phase: Discovery- initial probing of scientific problem using established methods with a concentration on techniques, data analysis</p>
<p>Gokul Das</p> <p><i>Dept. of Pharmacology and Therapeutics</i></p> <p>www.roswellpark.org/Gokul-Das</p> <p>CSTEP Peer-to-Peer Program? No</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</i></p>	<p>Scientific Research Clinical 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 Internship will involve various cellular and molecular experiments in multiple breast cancer cell models to probe tumor suppressor activities and mechanisms of drug resistance. The main focus will be on interaction between estrogen receptor and p53 signaling in breast cancer. The overall goal of research in my laboratory is to discover novel therapeutically actionable cellular targets</p> <p>Novel therapeutic strategies for triple negative breast cancer</p> <p>The Research Internship will involve various cellular and molecular experiments in multiple breast cancer cell models to probe tumor suppressor activities and mechanisms of drug resistance. The main focus will be on interaction between estrogen receptor</p> <p>Project phase: Elements of all three (Design, Discovery, Validation)</p>

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<p><i>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>Subhamoy Dasgupta</p> <p><i>Dept. of Cell Stress Biology</i></p> <p>www.roswellpark.org/Subhamoy-Dasgupta</p> <p>CSTEP Peer-to-Peer Program? No</p> <p>Mentoring style- <i>Provide trainees with necessary tools, guidance, support, and feedback to make the internship successful.</i></p> <p>Expectations of summer student- <i>1. Learn cancer biology 2. Explore opportunities to better understand the molecular complexities of the disease. 3. Perform experiments to fill the gap-in-knowledge.</i></p>	<p>Scientific Research</p> <p>Cancer genetics;Cancer molecular and cellular biology;Cancer pharmacology and therapeutics;Tumor immunology & immunotherapy</p>	<p>Metabolic Control of Tumor Progression and Metastasis 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.</p> <p>Project phase: Elements of all three (Design, Discovery, Validation)</p>
<p>Prasenjit Dey</p> <p><i>Dept. of Immunology</i></p> <p>www.roswellpark.org/Prasenjit-Dey</p> <p>CSTEP Peer-to-Peer Program? Yes</p>	<p>Scientific Research</p> <p>Cancer genetics;Cancer molecular and cellular</p>	<p>Role of tumor microenvironment in pancreatic, colon and lung tumor A major component of tumor microenvironment is the secreted factors arising from infiltrating immune cells, stroma, intra-tumor microbiome and cancer cells itself, which shapes the overall trajectory of the disease. We will evaluate the components that directly support pancreatic</p>

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<p>Mentoring style- <i>Folks in my lab are highly collaborative and we work as a team.</i></p> <p>Expectations of summer student- <i>You will be exposed to various mouse modeling, molecular biology, immunology, genetics and biochemistry tools. Along with that you will see how tumor evolves in animal model of cancer.</i></p>	<p>biology;Tumor immunology & immunotherapy</p>	<p>cancer initiation, progression and metastasis. and progression.</p> <p>Project phase: Elements of all three (Design, Discovery, Validation)</p>
<p>John Ebos</p> <p><i>Dept. of Medicine</i></p> <p>www.roswellpark.org/John-Ebos</p> <p>CSTEP Peer-to-Peer Program? Yes</p> <p>Mentoring style- <i>As a group we come to the lab everyday and push ourselves to be as conceptually innovative and creative as possible, we see no limits to how much we can invest, know, read, or test experimentally. As a mentor I try to bring out your best in these areas and work on things that are needed in any profession, such as writing, speaking, and problem solving.</i></p> <p>Expectations of summer student- <i>An ideal summer student is someone who can give their best effort, commit to learning from experienced mentors, and match the enthusiasm in the lab.</i></p>	<p>Scientific Research</p> <p>Cancer molecular and cellular biology;Cancer pharmacology and therapeutics;Tumor immunology & immunotherapy; Surgical Oncology;Cancer genetics;Medical Oncology;Cancer bioinformatics;Cancer biostatistics</p>	<p>Resistance and metastasis following tumor microenvironment inhibition</p> <p>Student will use clinically relevant models of spontaneous metastatic disease to study resistance to antiangiogenic (VEGF pathway) and immunecheckpoint (PD-1 pathway) inhibitors. Student will be mentored by experienced trainees and learn several novel techniques</p> <p>Project phase: Elements of all three (Design, Discovery, Validation)</p>
<p>Irwin Gelman</p> <p><i>Dept. of Cancer Genetics</i></p> <p>www.roswellpark.org/Irwin-Gelman</p> <p>CSTEP Peer-to-Peer Program? Yes</p>	<p>Scientific Research</p> <p>Cancer genetics;Cancer molecular and cellular biology</p>	<p>The role of AKT isoform-specific substrates in promoting prostate cancer progression</p> <p>The intern will test, using mouse and human prostate cancer cell lines that vary in their PTEN status, how specific substrates controlled by AKT2 or AKT3 Src controls parameters of disease aggressiveness in vitro. This will involve cell culture, transfection, protein staining,</p>

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<p>Mentoring style- <i>I spend a lot of time up front teaching background and technical skills, but then allowing the intern to work with lab students on their project.</i></p> <p>Expectations of summer student- <i>Expectations include learning some background via papers I will assign, then shadowing a graduate student to learn technical skills. Finally, the intern is expected to develop some independence to perform experiments and to produce graphical (and possibly publishable) representations of their data.</i></p>		<p>fluorescence microscopy and signaling analysis (e.g.- immunoblots).</p> <p>Project phase: Discovery- initial probing of scientific problem using established methods with a concentration on techniques, data analysis</p>
<p>Maciej Goniewicz</p> <p><i>Dept. of Cancer Prevention and Population Sciences</i></p> <p>www.roswellpark.org/Maciej-Goniewicz</p> <p>CSTEP Peer-to-Peer Program? No</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>Katerina Gurova</p> <p><i>Dept. of Cell Stress Biology</i></p> <p>www.roswellpark.org/Katerina-Gurova</p>	<p>Scientific Research</p> <p>Cancer molecular and cellular</p>	<p>Control of chromatin stability in normal and cancer cells</p> <p>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</p>

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<p><i>CSTEP Peer-to-Peer Program? Yes</i></p> <p>Mentoring style- <i>na</i></p> <p>Expectations of summer student- <i>basic knowledge of molecular biology, principles of experimental design, interest and excitement about science.</i></p>	<p>biology;Cancer pharmacology and therapeutics</p>	<p>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.</p> <p>Project phase: Elements of all three (Design, Discovery, Validation)</p>
<p>Nitai Hait</p> <p><i>Dept. of Molecular and Cellular Biology</i></p> <p>www.roswellpark.org/Nitai-Hait</p> <p><i>CSTEP Peer-to-Peer Program? No</i></p>	<p>Scientific Research</p> <p>Cancer molecular and cellular biology;Cancer pharmacology and therapeutics;Tum</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. We are also interested in identifying novel molecular targets and underlying mechanisms of actions for tumor metastases.</p>

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<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>or immunology & immunotherapy</p>	<p>Significant projects: i) to determine the role of S1P as a cofactor in regulating master transcription factors (HIFs, STATs, NF-kB) functions in tumor metastasis; 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 various 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>Kathleen Kokolus</p> <p><i>Dept. of Immunology</i></p> <p>www.roswellpark.org/Kathleen-Kokolus</p> <p>CSTEP Peer-to-Peer Program? No</p> <p>Mentoring style- <i>I am present in the laboratory but would like students to learn to work somewhat independently by the end of the program.</i></p> <p>Expectations of summer student- <i>Students will be expected to work in a collaborative group interacting with graduate students, researchers, clinicians, and technicians. Students will need to follow directions, spend time reading about relative subjects, and be comfortable being involved in translational research.</i></p>	<p>Scientific Research</p> <p>Tumor immunology & immunotherapy</p>	<p>Exploring Ways to Mitigate Side Effects Caused by Cancer Drugs</p> <p>Many cancer drugs cause unwanted side effects and toxicities that negatively impact the quality of life of cancer survivors. In some cases, these toxicities may be so debilitating that patients may choose to forgo lifesaving treatment. This project will investigate combination therapy approaches, in in vitro and in vivo settings, that could help mitigate side effects caused by cancer treatment.</p> <p>Project phase: Design- early stage development of experimental components/methodologies with a concentration on techniques</p>
<p>Fengzhi Li</p> <p><i>Dept. of Pharmacology and Therapeutics</i></p> <p>www.roswellpark.org/Fengzhi-Li</p>	<p>Scientific Research</p> <p>Cancer molecular and cellular biology; Cancer</p>	<p>Study the novel anticancer drug FL118 mechanism of action in pancreatic cancer</p> <p>The student will be trained for basic technology (e.g., cell culture, western blots, etc.) for studying our anticancer drug FL118's mechanism of action (MOA). the goal is for the student to be familiar with laboratory anticancer drug research and development.</p>

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<p>CSTEP Peer-to-Peer Program? Yes</p> <p>Mentoring style- Signed the project and let the lab members help for the internship to finish the project/work. I am available to the student as well when needed.</p> <p>Expectations of summer student- Dedicated to the work signed due to research interesting, and take the research work seriously.</p>	<p>pharmacology and therapeutics; Anti cancer drug development and mechanistic studies</p>	<p>Project phase: Elements of all three (Design, Discovery, Validation)</p>
<p>William Magner</p> <p>Dept. of Head and Neck Surgery</p> <p>www.roswellpark.org/William-Magner</p> <p>CSTEP Peer-to-Peer Program? No</p> <p>Mentoring style- We maintain multiple projects at different stages employing several approaches so communication is key. We attempt to understand each student's interests and goals then match them with appropriate project options. My colleagues and I are all accessible but busy so we are happy to make time to teach and support student projects but rely on student initiative to address interests, skills and needed support.</p> <p>Expectations of summer student- Student success is directly proportional to their effort; therefore, we expect students to put in full days of sincere effort. Students need to take initiative and work as independently as possible but we will train and support every effort. Students need to communicate clearly their interests, skills and needs.</p>	<p>Scientific Research Clinical Research</p> <p>Cancer bioinformatics; Cancer biostatistics; Cancer molecular and cellular biology; Tumor immunology & immunotherapy; Medical Oncology; Surgical Oncology</p>	<p>Translational Research in Head & Neck, Plastic & Reconstructive Surgery</p> <p>The Head and Neck Cancer Translational Laboratory carries out multiple projects with the goal of improving treatment responses in head and neck cancers. Current projects investigate immune features of the tumor microenvironment that affect tumor growth and response to therapy. We use human and mouse cell lines in vitro as well as patient samples and mouse models. In silico studies of gene expression differences may help characterize head and neck tumor behavior.</p> <p>Prospective and retrospective studies in Head & Neck, Plastic Reconstructive Surgery</p> <p>The Department of Head & Neck, Plastic & Reconstructive Surgery includes 11 surgeons with broad surgical specialties and research interests including surgical technique, patient outcomes, and complications among other issues. Our tools include prospective</p> <p>Project phase: Elements of all three (Design, Discovery, Validation)</p>
<p>Kent Nastiuk</p>	<p>Scientific Research</p>	<p>muscle loss during androgen deprivation therapy for prostate cancer, or imaging of prostate cancer</p>

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Mentor	Research Areas	Project description
<p>Dept. of Cancer Genetics and Genomics, Urology</p> <p>www.roswellpark.org/Kent-Nastiuk</p> <p>CSTEP Peer-to-Peer Program? No</p> <p>Mentoring style- <i>My ultimate goal is to give the trainee experience as an independent researcher. I think this requires working collaboratively to tackle a significant problem, but give the time limits, this is likely limited to a small part of a larger project. My role is to develop both technical and critical thinking skills, while helping the trainee to gain both the specific and broad knowledge necessary to produce new knowledge. I see success as clear communication of the products of the internship.</i></p> <p>Expectations of summer student- <i>I value students of diverse backgrounds with a passion for science, and both strong quantitative and critical thinking skills. I expect students to: 1) communicate! 2) work hard during your limited time in the lab 3) be a good lab citizen 4) be flexible! Sometimes science doesn't take you down the path you expect. I expect summer students will attend all appropriate lab meetings and seminars.</i></p>	<p>Cancer experimental diagnostics; Cancer genetics; Cancer molecular and cellular biology; Cancer pharmacology and therapeutics; Urology</p>	<p>My lab studies androgen regulated growth and apoptosis signaling pathways in prostate cancer. Androgen deprivation therapy (ADT) causes frailty so a major focus is examining the mechanism of (cytokines that signal) ADT-induced muscle loss. We are also developing targeted molecular agents for both MR and PA imaging of prostate cancer (with Hans Schmitthenner, RIT). Interns will tackle a small chunk of one of these projects.</p> <p>Project phase: Discovery- initial probing of scientific problem using established methods with a concentration on techniques, data analysis</p>
<p>Richard O'Connor</p> <p>Dept. of Cancer Prevention and Population Sciences</p> <p>www.roswellpark.org/Richard-O'Connor</p> <p>CSTEP Peer-to-Peer Program? No</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>

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<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>Project phase: Discovery- initial probing of scientific problem using established methods with a concentration on techniques, data analysis</p>
<p>Scott Olejniczak</p> <p><i>Dept. of Immunology</i></p> <p>www.roswellpark.org/Scott-Olejniczak</p> <p>CSTEP Peer-to-Peer Program? No</p> <p>Mentoring style- <i>I believe that everyone learns differently and I hope to provide a space in which students can learn and grow at their own pace. I aim to provide enough mentoring to guide the projects in my lab without limiting the creativity of my students.</i></p> <p>Expectations of summer student- <i>Students should be curious, hard working and responsible.</i></p>	<p>Scientific Research</p> <p>Cancer molecular and cellular biology; Tumor immunology & immunotherapy</p>	<p>Molecular mechanisms of cancer immunotherapy</p> <p>The Olejniczak lab focuses on molecular changes that occur in immune cells as they respond to cancer immunotherapy. Summer students will work collaboratively with members of the Olejniczak lab to explore novel and exciting ways immune cells are reprogrammed by cancer immunotherapies in order to kill tumor cells. Summer projects will provide an opportunity for students to gain first hand experience with cutting-edge approaches and technologies being used to improve immunotherapy for cancer..</p> <p>Project phase: Discovery- initial probing of scientific problem using established methods with a concentration on techniques, data analysis</p>
<p>Santosh Patnaik</p> <p><i>Dept. of Surgical Oncology</i></p> <p>www.roswellpark.org/Santosh-Patnaik</p> <p>CSTEP Peer-to-Peer Program? No</p> <p>Mentoring style- <i>Full guidance when needed; encouragement to explore.</i></p>	<p>Scientific Research</p> <p>Cancer bioinformatics; Cancer biostatistics; Cancer genetics; Cancer molecular epidemiology; Cancer pharmacology and therapeutics;</p>	<p>Experimental and computational examination of genes in cancer and immunology</p> <p>We are interested in genetics (gene mutations, gene expression, etc.), epigenetics (microRNAs, RNA editing, etc.), and metabiomics (microbiome, etc.) as it pertains to cancer and the human body's immunological response to it. These are very broad areas, and allow 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</p>

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Mentor	Research Areas	Project description
<p>Expectations of summer student- <i>The student is curious, communicative, and has a sense of responsibility for the project.</i></p>	<p>Tumor immunology & immunotherapy; Surgical Oncology; Cancer molecular and cellular biology; Radiation Oncology; Cancer exper</p>	<p>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. 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>Project phase: Elements of all three (Design, Discovery, Validation)</p>
<p>Mukund Seshadri</p> <p><i>Dept. of Oral Oncology/Dentistry and Maxillofacial Prosthetics</i></p> <p>www.roswellpark.org/Mukund-Seshadri</p> <p>CSTEP Peer-to-Peer Program? Yes</p> <p>Mentoring style- <i>Democratic but expect interns to be professional in their interactions and diligent with an outstanding work ethic.</i></p> <p>Expectations of summer student- <i>Motivated, willing to take ownership of the work</i></p>	<p>Scientific Research Clinical Research</p> <p>Cancer biophysics; Radiation Oncology; Cancer experimental diagnostics; Medical Oncology; Surgical Oncology; Oral Medicine; Cancer pharmacology and therapeutics; Cancer prevention and epidemiology</p>	<p>Developing novel combination strategies for oral cancer</p> <p>Research in my laboratory is focused on three main areas: (i) understanding the 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.</p> <p>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>Integrating AI/Machine Learning for Early Detection and Prognostication</p> <p>We are investigating the potential of integrating artificial intelligence (AI) and machine learning (ML) with imaging methods to determine if the diagnostic or prognostic performance of traditional imaging methods such as MRI, CT and US can be improved.</p> <p>Project phase: Elements of all three (Design, Discovery, Validation)</p>

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Mentor	Research Areas	Project description
<p>Gal Shafirstein</p> <p>Dept. of <i>Cell Stress Biology</i></p> <p>www.roswellpark.org/Gal-Shafirstein</p> <p>CSTEP Peer-to-Peer Program? No.</p> <p>Mentoring style- 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.</p> <p>Expectations of summer student- 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.</p>	<p>Scientific Research</p> <p>Photodynamic Therapy; Cancer biophysics; Surgical Oncology</p>	<p>Treatment Planning and Light Dosimetry in Photodynamic Therapy (PDT)</p> <p>My research team is focused on the development and implementation of treatment planning and light dosimetry in PDT. My group includes 1 pre-doctoral student, a post doctoral and a technician. We collaborate with physicians, and faculty with expertise in radiation biology, biostatistics, and imaging at Roswell Park, and drug developers at other research institutes. We do preclinical and clinical studies, and investigate combination therapies.</p> <p>Project phase: Elements of all three (Design, Discovery, Validation)</p>
<p>Anurag Singh</p> <p>Dept. of <i>Radiation Medicine</i></p> <p>www.roswellpark.org/Anurag-Singh</p> <p>CSTEP Peer-to-Peer Program? No</p> <p>Mentoring style- Close oversight with concurrent exposure to the clinic</p> <p>Expectations of summer student- 40 hours of work per week including 2 days/week in clinic</p>	<p>Clinical Research</p> <p>Radiation Oncology; Cancer pharmacology and therapeutics</p>	<p>Clinical Research Project in Radiation Medicine</p> <p>The goal of our clinical research overall are to assess administration of radiation treatment regimens in relationship to survival outcomes. Projects involve existing data and chart review. Projects will vary for the summer program. Past project titles t</p> <p>Project phase: Elements of all three (Design, Discovery, Validation)</p>
<p>Pamela Sung</p> <p>Dept. of <i>Pharmacology and Therapeutics</i></p> <p>www.roswellpark.org/Pamela-Sung</p> <p>CSTEP Peer-to-Peer Program? No</p>	<p>Scientific Research</p> <p>Cancer pharmacology and therapeutics</p>	<p>Novel therapies in Acute Myeloid Leukemia</p> <p>My laboratory focuses on a pathway (FLT3) that is frequently abnormal in acute myeloid leukemia (AML), which is a blood cancer affecting people of all ages. A drug targeting FLT3 was FDA approved recently. While it is effective, it is not curative. My goal is to better understand the biology of FLT3, so we can improve upon this therapy. We use a number of techniques including molecular biology, cell culture, flow cytometry, and</p>

Mentor	Research Areas	Project description
<p>Mentoring style- <i>I plan to meet one-on-one with a student on at least a weekly basis to discuss the project and ensure that the experience is catered to the student's educational goals. I believe in maintaining a good work-life balance and have no set hours that one "must" be in lab, so long as you continue to be productive.</i></p> <p>Expectations of summer student- <i>I expect students to be engaged in understanding the rationale behind the experiments and learn techniques to be able to perform them independently. Students will have their own project, but are welcome to be involved with other ongoing projects in the lab.</i></p>		<p>mouse modeling. As a leukemia physician, I hope these studies will lead to clinical trials for AML.</p> <p>Project phase: Discovery- initial probing of scientific problem using established methods with a concentration on techniques, data analysis</p>
<p>Li Tang</p> <p>Dept. of Cancer Prevention and Population Sciences</p> <p>www.roswellpark.org/Li-Tang</p> <p>CSTEP Peer-to-Peer Program? No</p> <p>Mentoring style- <i>I believe that teaching is to introduce but not to force-feed knowledge.</i></p> <p>Expectations of summer student- <i>The expectation is that the summer student may be inspired and prepared to embark on the pursuit of careers in biomedical research.</i></p>	<p>Scientific Research</p> <p>Cancer molecular epidemiology; Cancer prevention and epidemiology</p>	<p>Gene, Diet, and their interactions contributing to cancer characteristics and prognostic outcomes</p> <p>Our research program is engaged in molecular epidemiological study of cancer and is developed in two directions with a central theme of enhancing treatment efficacy and improving cancer prognosis. The first direction is to understand the role of gene-diet interaction in cancer prognosis and treatment outcome. The primary focus is on cruciferous vegetables and their key anti-cancer effectors, the phytochemical isothiocyanates. The second research direction is to understand the biological basis for cancer characteristics. The particular interest is in genetic and epigenetic contributions to racial disparities in cancer aggressiveness. The goal is to target high risk population with specific lifestyle and/or dietary intervention approaches to decrease cancer mortality.</p> <p>Project phase: Elements of all three (Design, Discovery, Validation)</p>

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Mentor	Research Areas	Project description
<p>Lei Wei</p> <p>Dept. of Bioinformatics/Biostatistics</p> <p>www.roswellpark.org/Lei-Wei</p> <p>CSTEP Peer-to-Peer Program? Blank</p> <p>Mentoring style- Flexible</p> <p>Expectations of summer student- <i>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.</i></p>	<p>Scientific Research</p> <p>Cancer bioinformatics</p>	<p>Characterize somatic mutations in cancer genomes 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>Project phase: Blank</p>
<p>Li Yan</p> <p>Dept. of Bioinformatics/Biostatistics</p> <p>www.roswellpark.org/Li-Yan</p> <p>CSTEP Peer-to-Peer Program? No</p> <p>Mentoring style- Lead by example</p> <p>Expectations of summer student- <i>Self-motivated & Team player</i></p>	<p>Scientific Research</p> <p>Cancer bioinformatics; Cancer biostatistics; Tumor immunology & immunotherapy; 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>