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Mentor	Research Areas	Project description
Song LiuDept. of Bioinformatics/Biostatisticswww.roswellpark.org/Song-LiuCSTEP Peer-to-Peer Program? NoMentoring style- lead by example; team workExpectations of summer student- self-motivated; team player	Scientific Research Clinical Research Cancer bioinformatics; Cancer genetics; Tumor immunology & immunotherapy	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. Project phase: Elements of all three (Design, Discovery, Validation)



Mentor	Research Areas	Project description
Andrei Bakin Dept. of Cancer Genetics www.roswellpark.org/Andrei- Bakin CSTEP Peer-to-Peer Program? No Mentoring style- Hands-on with direct and immediate interaction in the lab; once the student has learned various lab techniques they will be responsible for producing independent data with guidance from mentor(s).	Scientific Research Cancer genetics; Cancer molecular and cellular biology; Tumor immunology & immunotherapy	Novel Selective Lethality Strategy for p53-Deficient Cancers Loss of p53 tumor suppressor function is a common feature of several solid cancers including breast and gastro-intestinal (GI)-tract cancers. We found that p53-deficient TNBC and GI- tract cancer cells exhibit dysregulation in the DNA repair process and identified a novel drug combination that selectively eliminate p53-deficient cancer cells. The study will explore specific indications and regimens for the clinical application of the proposed drug combination using cell culture and mouse models.Project phase: Elements of all three (Design, Discovery, Validation)
<b>Expectations of summer student-</b> <i>Taking notes, asking questions, and</i> <i>reading background material</i> <i>pertaining to the project. We expect the</i> <i>student to be actively involved in</i> <i>laboratory meetings and discussions</i> <i>and to be prepared to learn with a</i> <i>positive attitude. The student will be</i> <i>expected to have excellent attendance</i> <i>and to keep a clear and concise lab</i> <i>notebook. Furthermore, we expect the</i> <i>student to generate their laboratory</i> <i>results independently and to stay on</i> <i>track with their project outline.</i> <i>Excellent communication skills, both</i> <i>verbal and written, will also be</i> <i>expected.</i>		



Irwin Gelman Scientific	<b>The role of Src in promoting prostate cancer progression</b>
Research	The intern will test, using mouse and human prostate cancer
Dept. of Cancer GeneticsCancer genetics; Cancer molecular and cellular biologyWww.roswellpark.org/Irwin- GelmanCancer genetics; Cancer molecular and cellular biologyCSTEP Peer-to-Peer Program? NoMentoring style- 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.Hermitian Students on their project.Expectations of summer student- 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 theirHermitian Cancer molecular and cellular biology	cell lines that vary in their PTEN status, how Src controls aggressiveness through the use differential use of PI3K and AKT isoforms . This will involve cell culture, transfection, protein staining, fluorescence microscopy and signaling analysis (e.g immunoblots). <b>Project phase:</b> Discovery- initial probing of scientific problem using established methods with a concentration on techniques, data analysis



Mentor	Research Areas	Project description
Y. Eugene Yu Dept. of Cancer Genetics www.roswellpark.org/Y. Eugene-Yu CSTEP Peer-to-Peer Program? No Mentoring style- We will provide a supportive and creative research environment. Expectations of summer student- We have the following expectations: Understanding the project, Learning the necessary lab techniques, Gradually becoming independent, Being a supportive and constructive team member, Learning the skills to overcome scientific and technical obstacles, Enjoying being a scientific experimentalist.	Scientific Research Cancer genetics; Cancer molecular and cellular biology	Genetic modeling and analysis of human diseases One of the focuses is molecular genetic analysis of trisomy 21. We are also interested in the mouse-based genetic dissection of tumor-associated chromosomal rearrangements. Such efforts should facilitate the establishment of critical genetic alterations in the formation of various types of tumors. <b>Project phase:</b> Discovery- initial probing of scientific problem using established methods with a concentration on techniques, data analysis



Mentor	Research Areas	Project description
Kent Nastiuk	Scientific Research	muscle loss during androgen deprivation therapy for prostate cancer, or imaging of prostate cancer
Dept. of <b>Cancer Genetics and</b> Genomics, Urology	Cancer	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
www.roswellpark.org/Kent-Nastiuk	diagnostics;	mechanism of ADT-induced muscle loss. We are also developing targeted molecular agents for both MR and PA
CSTEP Peer-to-Peer Program? No	Cancer molecular and cellular	imaging of prostate cancer (with Hans Schmitthenner, RIT). Interns will tackle a small chunk of one of these projects.
<b>Mentoring style-</b> 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.	biology; Cancer pharmacology and therapeutics; Urology	<b>Project phase:</b> Discovery- initial probing of scientific problem using established methods with a concentration on techniques data analysis
<b>Expectations of summer student-</b> <i>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.		



Mentor	Research Areas	Project description
Elizabeth Bouchard Dept. of Cancer Prevention and Control www.roswellpark.org/Elizabeth- Bouchard CSTEP Peer-to-Peer Program? Yes Mentoring style- Eager to involve trainees in all aspects of the research process, including interacting with research participants. Excited to expose trainees to social science research, and how it applies to medicine. Expectations of summer student- Comfortable interacting with cancer patients and their caregivers. Interested in learning more about sociology and health disparities research. Interested in learning about social science research methods.	Scientific Research Sociology; Pediatrics	Examining Experiences of Cancer CaregiversThe goal of the research in our lab is to understandexperiences of informal cancer caregivers (non-professionalcaretakers, often family members). Our research is socialscience oriented, mostly based in sociology. There are threemain research studies we are currently working on: (1)understanding how social network experiences shapecaregiver stress among parents of pediatric cancer patients,(2) testing an intervention to improve parents' abilities toadminister medication to young children, and (3)understanding "stress contagion" among patients and theircaregivers (e.g. does caregiver stress shape patient canceroutcomes?). types of work involved include management ofsurvey data, helping collect survey data, interacting with studyparticipants, attending lab meetings, and helping analyze data.Sociology;#PediatricsProject phase: Elements of all three (Design, Discovery,Validation)



Mentor	Research Areas	Project description
MentorMaciej GoniewiczDept. of Cancer Prevention and Population Scienceswww.roswellpark.org/Maciej- GoniewiczCSTEP Peer-to-Peer Program? YesMentoring style- 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.Expectations of summer student- Conduct a nilot experiments. Collect the	Research Areas Scientific Research Cancer prevention and epidemiology; Public Health	Project description         Safety of electronic cigarettes         Research projects are focused on new nicotine-containing         products and alternative forms of tobacco. We examine safety         and efficacy of electronic nicotine delivery devices, commonly         called e-cigarettes. These studies include the laboratory         evaluation of the products, pharmacological and toxicological         assessment, surveys among their users, and their potential         application in harm reduction, cancer prevention and smoking         cessation.         Project phase: Blank
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.		



Mentor	Research Areas	Project description
Rodney HaringDept. of Cancer Prevention and Population Scienceswww.roswellpark.org/Rodney- HaringCSTEP Peer-to-Peer Program? YesMentoring style- Respectful partnership in learning by creating bi- directional learning spaces and the encouragement of peer to peer work. I also work with community leaders and cross-mentor at both the community level and within various departments to offer a rounded experience for growth and success.Expectations of summer student- Open to learning about cultural nuances between western science and Indigenous science, respectful in building community relationships with an interest in writing and publishing.	Scientific Research Cancer prevention and epidemiology	<ul> <li>Indian Health Service Clinics, adjacent rural safety net providers, and the Cancer Care Continuum: Roswell Park Comprehensive Cancer Center Catchment Area, Tribes, and New York State</li> <li>The project builds and enhances partnerships and infrastructure between Roswell Park, Indian Health Services (IHS) clinics, and rural clinic providers to build capacity for successful cancer care continuums for Native American community members. Aims include quality improvement focused round-tables with IHS clinics, tribal departments and adjacent rural, safety-net, clinics serving Native Americans. Working with community film and media departments along with Roswell's Health Communications Resource, the project further aims to create a short media/video piece detailing the cancer care continuum journey with multiple tribes in the US and Canada.</li> <li>Project phase: Discovery- initial probing of scientific problem using established methods with a concentration on techniques, data analysis</li> </ul>



Mentor	Research Areas	Project description
Richard O'ConnorDept. of Cancer Prevention and Population Scienceswww.roswellpark.org/Richard- O'ConnorCSTEP Peer-to-Peer Program? NoMentoring style- I allow and expect interns to work independently. I will set up weekly meetings to discuss goals and progress.Expectations of summer student- 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.	Scientific Research Cancer prevention and epidemiology; Regulatory Science	<ul> <li>Consumer responses to flavored tobacco products</li> <li>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</li> <li>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.</li> <li>Project phase: Discovery- initial probing of scientific problem using established methods with a concentration on techniques, data analysis</li> </ul>
Binnian WeiDept. of Cancer Prevention and Population Scienceswww.roswellpark.org/Binnian-WeiCSTEP Peer-to-Peer Program? YesMentoring style- teamworkExpectations of summer student- learn basic knowledge about exposomics and biomonitoring	Scientific Research exposomics, biomonitoring and analytical chemistry ; Cancer prevention and epidemiology; Pediatrics	<ul> <li>Analysis of the biomarkersof exposures and effects         Qualified candidates will work with the researchers in our lab         to develop and optimize bio-analytical methods for quantifying         the biomarkers of exposures (e.g. nicotine, cannabinoids,         environmental contaminants) and effects (e.g. cancer,         cardiovascular diseases, lung diseases, inflammatory and         oxidative stress etc.).     </li> <li>Project phase: Discovery- initial probing of scientific problem         using established methods with a concentration on techniques,         data analysis</li> </ul>



Mentor	Research Areas	Project description
Anna Bianchi-SmiragliaDept. of Cell Stress Biologywww.roswellpark.org/Anna- Bianchi-SmiragliaCSTEP Peer-to-Peer Program? NoMentoring style- 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 thinkingExpectations of summer student- To be curious about science and the work being performed. To be responsible and committed. To work with integrity and as a team player.	Scientific Research Cancer molecular and cellular biology	GTP metabolism in breast cancer 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. N?A N/A Project phase: Discovery- initial probing of scientific problem using established methods with a concentration on techniques, data analysis
Subhamoy DasguptaDept. of Cell Stress Biologywww.roswellpark.org/Subhamoy- DasguptaCSTEP Peer-to-Peer Program? YesMentoring style- Provide trainees with necessary tools, guidance, support, and feedback to make the internship successful.Expectations of summer student- 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.	Scientific Research Cancer genetics; Cancer molecular and cellular biology; Cancer pharmacology and therapeutics; Tumor immunology & immunotherapy	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.



Mentor	Research Areas	Project description
Eugene Kandel Dept. of Cell Stress Biology www.roswellpark.org/Eugene- Kandel CSTEP Peer-to-Peer Program? Yes Mentoring style- 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.	Scientific Research Cancer molecular and cellular biology; Cancer pharmacology and therapeutics; Cancer genetics	<ul> <li>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 : <ol> <li>Resistance and sensitivity to targeted therapies in melanoma.</li> <li>The status of stress-response pathways as a predictor of outcomes in lung cancer.</li> <li>The mechanisms of resistance to oxygen and nutrient deprivation in mammalian cells.</li> </ol> </li> <li>Project phase: Elements of all three (Design, Discovery, Validation)</li> </ul>
<b>Expectations of summer student-</b> <i>A</i> self-motivated individual, intersted in a career as a biomedical scienitist and willing to invest more than a nominally required effort into this reaserch opportunity. Intellectual curiosity, independent thought, perseverance and dependability are expected.		



Mentor	Research Areas	Project description
Asoke Mal Dept. of Cell Stress Biology www.roswellpark.org/Asoke-Mal CSTEP Peer-to-Peer Program? Yes Mentoring style- One to one discussion in details regarding the provocative questions in pediatric sarcoma basic and translational biology and hand-on experimental training and procedures associated with the proposed studies. Expectations of summer student- I would like that the students will have interest in biological research, very discipline, clear understanding of the research project. He/she will maintain clear experimental methods and results in laboratory note book.	Cancer genetics; Cancer molecular and cellular biology; Cancer pharmacology and therapeutics; Pediatrics	Molecular mecanisms driving translocation-associated soft tissue cancer rhabdomyosarcomaSoft tissue tumor such as rhabdomyosarcoma (RMS) is a highly malignant and the most commonly diagnosed cancer in children and adolescents. Current therapies have improved overall survival of RMS patients, yet remain lower than that for many other pediatric cancers. RMS is falls into one of two biologically distinct subgroups: embryonal RMS (eRMS) or the aggressive alveolar RMS (aRMS), however their treatment regimens have been very similar. While current therapeutic strategies have improved the overall survival in patients with eRMS (>80%), the efficacy in aRMS remains dismal (<50%). Molecularly, aRMS is defined as a specific chromosomal translocation associated fusion carrying tumor e.g. fusion PAX3-FOX01 transcription factor and patients with fusion- positive tumors exhibit the worst prognosis (<10% overall survival). In addition, studies both from genetic and functional point of view highlight that PAX3-FOX01 acts as a driver oncogene in aRMS tumorigenesis and tumor cells depend on continuous activity of this fusion oncoprotein. While these facts underscore that PAX3-FOX01 is the most suitable therapeutic target for aRMS, so far, any PAX3-FOX01 increted therapeutic strategies have not been explored. Therefore, functional studies at different molecular angles are necessary to identify tumor specific vulnerabilities that may open the door to eradicate biological behaviors of PAX3-FOX01-positive tumor with the goal for its potential as the most effective therapeutic strategy.Since aRMS-specific PAX3-FOX01 bearing tumor is a transcription-driven disease, our research study involves epigenetic mechanisms and signaling pathways, and to identify drug-like compounds by functional screening of small molecules chemical libraries will likely provide opportunities<



Mentor	Research Areas	Project description
MentorGal ShafirsteinDept. of Cell Stress Biologywww.roswellpark.org/Gal- ShafirsteinCSTEP Peer-to-Peer Program? NoMentoring 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	Research Areas Scientific Research Photodynamic Therapy; Cancer biophysics	<ul> <li>Project description</li> <li>Treatment Planning and Light Dosimetry in Photodynamic Therapy (PDT)</li> <li>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.</li> <li>Project phase: Elements of all three (Design, Discovery, Validation)</li> </ul>
for research discussions as needed. <b>Expectations of summer student-</b> 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.		



Mentor	Research Areas	Project description
Mollie Hutton	Clinical Research	Exploring issues related to genetic counseling/testing for hereditary cancer risk
Dept. of Clinical Genetics	Clinical genetics	This internship is directed toward students specifically
www.roswellpark.org/ Mollie- Hutton		Students will complete clinical observations (a requirement when applying to graduate programs in genetic counseling) as well as gain val
CSTEP Peer-to-Peer Program? No		<b>Project phase:</b> Elements of all three (Design Discovery
<b>Mentoring style-</b> <i>I</i> am supportive and have an open door for questions. <i>I</i> do not micromanage and instead will challenge a mentee to develop ideas and problem solve on their own.		Validation)
<b>Expectations of summer student</b> - Complete a clinical research project, likely existing data review including review of past medical records, genetic pedigree and genetic test result for data collection. Assessment of data and formulation of conclusion. Also will shadow with the genetic counselors in the clinic and assist in pedigree construction and drafting of patient materials		



Mentor	Research Areas	Project description
Amanda QuisenberryDept. of Health Behaviorwww.roswellpark.org/ Amanda- QuisenberryCSTEP Peer-to-Peer Program? YesMentoring style- I am an interactive, involved mentor with a desire to share my work and motivate young investigators.Expectations of summer student- 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.	Scientific Research Cancer prevention and epidemiology	Tobacco Product Consumption under Hypothetical Flavor Policy Environments Using Behavioral Economic and Eye Tracking MethodsThe 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 
Scott Abrams Dept. of Immunology www.roswellpark.org/Scott- Abrams CSTEP Peer-to-Peer Program? No Mentoring style approachable and accessible - encourage creativity - motivate to think deeply about the scientific problem and formulating testable hypotheses Expectations of summer student- - yearn to learn - passionate about fundamental scientific discovery - be curious, ask questions, and challenge the field	Scientific Research Tumor immunology & immunotherapy	<ul> <li>Immune Suppression in Cancer</li> <li>Immune suppression is a major mechanism of cancer growth and therapeutic resistance. It is defined by the inability of the host to produce a meaningful immune response, thereby enabling cancer to thrive and resist diverse therapies. The process of cancer growth is responsible for altering the integrity of the immune response. My laboratory studies how cancer causes immune suppression, and based on that new knowledge, the development of new or the refinement of existing therapies to overcome such deficiencies to improve the anticancer response. In vitro and in vivo studies in preclinical animal models are performed to achieve these broad goals. Emphasis is on how specific populations of blood cells, known as myeloid cells, are compromised in cancer, since these cells ordinarily play critical roles in controlling cancer and their response to treatment through a variety of mechanisms.</li> <li>Project phase: Elements of all three (Design, Discovery, Validation)</li> </ul>



Mentor	Research Areas	Project description
Joseph Barbi	Scientific	Exploring the mechanisms and therapeutic potential of
Dept. of <b>Immunology</b>	Research	The immune system's destructive potential is regulated by numerous regulatory mechanisms. By understanding these we
www.roswellpark.org/ Joseph- Barbi	Tumor immunology & immunotherapy	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
CSTEP Peer-to-Peer Program? Yes		
<b>Mentoring style-</b> Moderate hands-on technical training coupled with an emphasis on independent thought and interest-driven project steering.		<b>Project phase:</b> Elements of all three (Design, Discovery, Validation)
<b>Expectations of summer student</b> - 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.		
Prasenjit Dey	Scientific Research	<b>Role of tumor microenvironment in pancreatic tumor</b> A major component of tumor microenvironment in cancer is
Dept. of <b>Immunology</b>	Cancer genetics; Cancer molecular and cellular biology	the secreted factors arising from infiltrating immune cells, stroma and cancer cells itself, which shapes the overall trajectory of the disease. We will evaluate the components that are directly supports pancreatic cancer initiation and progression.
www.roswellpark.org/Prasenjit- Dey		
CSTEP Peer-to-Peer Program? Yes		
<b>Mentoring style-</b> Folks in my lab are highly collaborative and we work as a team.		Validation)
<b>Expectations of summer student-</b> You will be exposed to various molecular biology, genetic and biochemistry tools. Along with that you will see how tumor evolves in animal model of cancer.		



Mentor	Research Areas	Project description
Anm Nazmul Khan Dept. of Internal Medicine www.roswellpark.org/ Anm Nazmul-Khan CSTEP Peer-to-Peer Program? No Mentoring style- I like to provide relevant background information on the subject first, train the techniques for the assay and let them perform the experiments/data analysis under supervision and independently Expectations of summer student- It is expected that the intern will learn established assays, generate new data or validate preliminary findings in relation to the specific scientific question as part of the research project of the lab.	Scientific Research Tumor immunology & immunotherapy; Gynecology	Evaluate the mechanisms involved in neutrophils mediated T cell suppression in ovarian cancer microenvironment Cellular necrosis is associated with release of damage- associated molecular patterns (DAMPs) that activate innate immune responses. It has been shown that circulating DAMPs released following traumatic injury activate innate immune cells such as neutrophils, and elicit neutrophil-mediated inflammation. Our lab found that advanced ovarian cancer (OC) is associated with accumulation of neutrophils and other myeloid cells in the local tumor environment. We have shown that cell-free ascites from OC patients converts peripheral blood neutrophils derived from OC patients or normal volunteer to an immunosuppressive phenotype which inhibits activated T cell proliferation. Effective anti-tumor immunity requires expansion and activation of tumor antigen-specific T cells in the tumor microenvironment, while suppression of these functions impedes anti-tumor immunity. However how cell-free ascites modulate neutrophils to become T cell suppressive in OC microenvironment is not well understood. The goal of this project is to evaluate the mechanisms involved in neutrophil mediated T cell suppression in ovarian tumor microenvironment. To achieve this aim in vitro cellular assays and flow cytometry will be used involving human peripheral blood cells and ascites from OC patients.



Mentor	Research Areas	Project description
John Ebos Dept. of Medicine www.roswellpark.org/ John-Ebos CSTEP Peer-to-Peer Program? Yes Mentoring style- 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. Expectations of summer student- Current lab members include late-stage PhD students who are exceptionally committed to their projects and represent model examples of work ethic and intellectual investment, so there is an excellent opportunity for strong mentorship by committed teachers. An ideal summer student is someone who can give their best effort to learn from these examples, and match the enthusiasm in the lab.	Scientific Research Cancer molecular and cellular biology; Cancer pharmacology and therapeutics; Tumor immunology & immunotherapy; Surgical Oncology; Cancer genetics; Medical Oncology; Cancer bioinformatics; Cancer biostatistics	Resistance and metastasis following tumor microenvironment inhibition         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, including those bench-related         Project phase: Elements of all three (Design, Discovery, Validation)



Mentor	Research Areas	Project description
Eunice Wang Dept. of Medicine www.roswellpark.org/Eunice- Wang CSTEP Peer-to-Peer Program? No Mentoring style- TBD Expectations of summer student- TBD	Scientific Research Cancer pharmacology and therapeutics; Medical Oncology; Cancer molecular and cellular biology; Tumor immunology & immunotherapy	<ul> <li>Novel Biological Therapies for Acute Leukemia</li> <li>Our laboratory 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 leukemia cell survival and therapeutic resistance. Current projects in the lab are focused on optimizing immunotherapy for acute myeloid leukemia, evaluation of novel antibody drug conjugates targeting CD33 and CD123 expressed on leukemia cells, and the role of autophagy inhibitors in overcoming therapy resistance. 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 agents amenable to rapid translation into early stage clinical trials at our institute.</li> <li>Project phase: Elements of all three (Design, Discovery, Validation)</li> </ul>



Mentor	Research Areas	Project description
Ethan Abel Dept. of Molecular and Cellular Biology www.roswellpark.org/ Ethan-Abel CSTEP Peer-to-Peer Program? Yes Mentoring style- 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. Expectations of summer student- By the end of their time in the lab a summer student should be able to	Scientific Research Cancer molecular and cellular biology; Cancer pharmacology and therapeutics	<ul> <li>Epigenetic targeting of pancreatic cancer stem cells</li> <li>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.</li> <li>Students will use human cancer cells as models, and utilize protein, RNA, and DNA analyses in their studies.</li> <li>Project phase: Elements of all three (Design, Discovery, Validation)</li> </ul>
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 (at least 3 times) 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.		



Mentor	Research Areas	Project description
Nitai Hait Dept. of Molecular and Cellular Biology www.roswellpark.org/ Nitai-Hait CSTEP Peer-to-Peer Program? Yes Mentoring style- 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. Expectations of summer student- During the internship, the student should have the motivation to learn, gathering knowledge, and hands-on experiences.	Scientific Research Cancer molecular and cellular biology; Cancer pharmacology and therapeutics	Mechanisms by which sphingolipid mediators impact tumor progression and metastasis 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. Project phase: Validation- confirming previous data/results with a concentration on techniques, data interpretation and science reporting; potential for contributing to a scientific paper
Dimiter Kunnev Dept. of Molecular and Cellular Biology www.roswellpark.org/ Dimiter- Kunnev CSTEP Peer-to-Peer Program? Yes Mentoring style- Formulating the scientific goals, let the student read and study, I like provocative scientific thinking, demonstrate how the experimental procedure works and allow student to perform the experiments. I like early development of presentations and figures. Expectations of summer student- Student should be: eager to learn, responsible to execute experiments, asking lots of questions.	Scientific Research Cancer molecular and cellular biology; Cancer pharmacology and therapeutics; Cancer genetics	<ul> <li>DNA replication as cell cycle regulation in cancer cells</li> <li>We are seeking to define the mechanisms which determinate the proper DNA replication machinery assembly. This study would be investigated from different angles in normal and cancer cells. Major goal of our research is to utilize this knowledge for specific treatment of cancer.</li> <li>Project phase: Discovery- initial probing of scientific problem using established methods with a concentration on techniques, data analysis</li> </ul>



Mentor	Research Areas	Project description
Mukund SeshadriDept. of Oral Medicine/Head and Neck Surgerywww.roswellpark.org/Mukund- SeshadriCSTEP Peer-to-Peer Program? TBDMentoring style- TBDExpectations of summer student- TBD	Scientific Research Clinical Research Cancer biophysics; Cancer pharmacology and therapeutics; Radiation Oncology; Cancer experimental diagnostics; Cancer prevention and epidemiology	Multi-modal Imaging of Cancer Research in my laboratory is focused on three main areas: (i) understanding the vascular biology of head and neck cancers and exploiting them for therapeutic benefit, (ii) development of safe and effective bio-adjuvant approaches for the prevention of oral cancers and, (iii) the use of advanced imaging methods such as MRI, CT in preclinical models and in patients to study response of head and neck tumors to chemotherapy and radiation. The work is interdisciplinary in nature and draws on concepts from biophysics, cancer biology, pharmacology and molecular biology. Given my clinical background, I feel strongly about pursuing a research program that addresses clinically-relevant questions in the laboratory setting and potentially translates the knowledge gained into meaningful outcomes for patients.
		<b>Project phase:</b> Validation- confirming previous data/results with a concentration on techniques, data interpretation and science reporting; potential for contributing to a scientific paper



Mentor	Research Areas	Project description
<ul> <li>Dhyan Chandra</li> <li>Dept. of Pharmacology and Therapeutics</li> <li>www.roswellpark.org/ Dhyan- Chandra</li> <li>CSTEP Peer-to-Peer Program? Yes</li> <li>Mentoring style- Provide opportunities to brainstorm ideas. Encourage student to ask questions. Guide student to develop collaborative skills to understand scientific research project.</li> <li>Expectations of summer student- 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.</li> </ul>	Scientific Research Cancer molecular and cellular biology; Cancer pharmacology and therapeutics; Urology	<ul> <li>Mitochondrial Regulation of Cell Death and Resistance in Cancer</li> <li>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.</li> <li>Project phase: Discovery- initial probing of scientific problem using established methods with a concentration on techniques, data analysis</li> </ul>



Mentor	Research Areas	Project description
Gokul Das Dept. of Pharmacology and Therapeutics www.roswellpark.org/Gokul-Das CSTEP Peer-to-Peer Program? Yes Mentoring style- 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 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. Expectations of summer student- 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.	Scientific Research Cancer genetics; Cancer molecular and cellular biology; Cancer pharmacology and therapeutics	<ul> <li>Mechanisms by which Hormone Receptors and Tumor Suppressors Impact Cancer</li> <li>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.</li> <li>Project phase: Elements of all three (Design, Discovery, Validation)</li> </ul>



Mentor	Research Areas	Project description
Pamela HershbergerDept. of Pharmacology and Therapeuticswww.roswellpark.org/ Pamela- HershbergerCSTEP Peer-to-Peer Program? NoMentoring style- 1 like to provide enough guidance and instruction so that a new student can work independently but successfully. I will provide constructive criticism to support trainee development, but I will not be critical. I will work to identify and meet the needs of each trainee in my lab.Expectations of summer student- Student will be enthusiastic about the research opportunity and easy to engage. Student will be responsive to guidance by senior lab members and respectful of lab resources. Student will work in earnest to understand concepts and approaches used in the lab.	Scientific Research Cancer molecular and cellular biology; Cancer pharmacology and therapeutics	Cross talk between vitamin D and tyrosine kinase inhibitorsTyrosine kinase inhibitors are an important class of drugs used to treat lung cancer. We have uncovered dynamic crosstalk between vitamin D and tyrosine kinase inhibitors. Ongoing molecular and cell based assays are being used to dissect the basis for crosstalk and its implications for lung cancer treatment.Project phase: Discovery- initial probing of scientific problem using established methods with a concentration on techniques, data analysis
Fengzhi Li Dept. of Pharmacology and Therapeutics www.roswellpark.org/ Fengzhi-Li CSTEP Peer-to-Peer Program? No Mentoring style- Give him/her general orioject and then sign him /her to a lab researcher. Expectations of summer student- mastering some basic techniques such as cell culture and cell arowth assay	Scientific Research Cancer molecular and cellular biology; Cancer pharmacology and therapeutics	Mechanism of action for FL118 or FL118 analogue in cancerThe student will work together with the PhD student Ms. Ieman Aljahdali to study the mechanism by which the FL118 analogue Hx6 induces apoptosis in papillary renal cell carcinoma (pRCC) cancer.Project phase: Elements of all three (Design, Discovery, Validation)



Mentor	Research Areas	Project description
Xiang LingDept. of Pharmacology and Therapeuticswww.roswellpark.org/Xiang-LingCSTEP Peer-to-Peer Program? YesMentoring style- sharing knowledge and skills; overseeing student's work.Expectations of summer student- be a responsible student	Scientific Research Cancer molecular and cellular biology; Cancer pharmacology and therapeutics	Anticancer drug evaluation and mechanism study 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. Project phase: Design- early stage development of experimental components/methodologies with a concentration on techniques
Xinjiang Wang Dept. of Pharmacology and Therapeutics www.roswellpark.org/Xinjiang- Wang CSTEP Peer-to-Peer Program? Yes Mentoring style- educator and challenger for problem-solving capabilities Expectations of summer student- sincere interest in cancer science, strictly following instructions, actively asking questions	Scientific Research Cancer genetics; Cancer pharmacology and therapeutics; Cancer molecular and cellular biology	Development of Novel Targeted Therapies for Leukemia Treatment 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- resistantleukemia/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. <b>Project phase:</b> Elements of all three (Design, Discovery, Validation)



Mentor	Research Areas	Project description
Anna Woloszynska-Read Dept. of Pharmacology and Therapeutics www.roswellpark.org/Anna- Woloszynska-Read CSTEP Peer-to-Peer Program? Yes Mentoring style- I encourage creativity and inquisitiveness. I expect questions and self-motivation. I am not a micromanager, but I put a lot of emphasis on punctuality, honesty, and reliability. I am always available to discuss any and all aspects of a student training. I enjoy one on one mentoring and appreciate true excitement a student shows about their work. Expectations of summer student- I expect a summer student (any level of education) to be actively engaged in the laboratory by asking questions, interacting with lab members, and frequently scheduling meetings to discuss their progress with me.	Scientific Research Cancer genetics; Cancer molecular and cellular biology; Cancer pharmacology and therapeutics; Urology;cancer epigenetics	Genetic and epigenetic regulation in genitourinary cancers High grade and high stage muscle-invasive bladder cancer (MIBC) is one of the most aggressive human cancers. Less than 20% of patients with advanced MIBC survive past 5 years due to lack of curative treatment. Thus, investigating the mechanisms of bladder cancer invasion is of paramount importance. Numerous factors are involved in recurrence, progression, and patient survival given bladder cancer's diverse biological and functional characteristics. Due to the heterogeneous nature of BC, pathologically similar tumors may behave differently, making progression to MIBC highly unpredictable. The unpredictable aggressiveness of high-risk non-muscle invasive (NMI) bladder tumors often leads to over- treatment with radical cystectomy, which in turn is associated with significant morbidity. Yet few options remain, since misrecognition and under-treatment of potentially aggressive, life-threatening NMI bladder tumors most often results in death. To date, the molecular alterations that transform NMI bladder cancer into MIBC have not been identified. MIBC patients with refractory disease have severely limited treatment options, making development of improved prognostic markers and treatment strategies a very high priority for this group of patients. The purpose of this project is to investigate the role of STAG2 in bladder cancer. The hypothesis guiding this research is that STAG2 in muscle- invasive bladder cancer has a predictive value and acts as an oncogenic transcriptional factor regulating genes involved in tumor cell invasion. To delineate the mechanism by which STAG2 enhances invasion in muscle-invasive bladder cancer cells our laboratory is working to establish the functional role of novel STAG2 target genes in STAG2-dependent regulation of invasion in muscle-invasive bladder cancer cells and identify prognostic significance of STAG2 alone or in combination with its downstream targets in bladder cancer progression. <b>Project phase:</b> Elements of all three (



Mentor	Research Areas	Project description
Yuesheng Zhang Dept. of Pharmacology and Therapeutics www.roswellpark.org/Yuesheng- Zhang CSTEP Peer-to-Peer Program? No Mentoring style- Expect motivation, hard work, and productivity. Expectations of summer student- The intern should have some previous experience in wet lab research in biochemistry, biology, pharmacology or cancer research.	Scientific Research Cancer pharmacology and therapeutics	Targeting ErbB receptor tyrosine kinases in cancerCell membrane-bound ErbB receptor tyrosine kinases,particularly ErbB1 and ErbB2, are major oncogenic driversand cancer therapeutic targets. We have recently found that anovel human protein targets both ErbB1 and ErbB2 and aredoing research to better understand its antitumor activity.Project phase: Design- early stage development ofexperimental components/methodologies with aconcentration on techniques
Matthew PodgorsakDept. of Radiation Medicinewww.roswellpark.org/Matthew- PodgorsakCSTEP Peer-to-Peer Program? NoMentoring style- Supportive style giving mentee significant ability to develop methods of study independently.Expectations of summer student- 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.	Scientific Research Radiation Oncology; Medical Physics	<ul> <li>Medical Physics applications         <ul> <li>A student intern will study clinical aspects of medical physics.</li> <li>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.</li> </ul> </li> <li>Project phase: Elements of all three (Design, Discovery, Validation)</li> </ul>



Mentor	Research Areas	Project description
Santosh Patnaik Dept. of Surgical Oncology www.roswellpark.org/ Santosh- Patnaik CSTEP Peer-to-Peer Program? No Mentoring style- Full guidance when needed; encouragement to explore. Expectations of summer student- The student is curious, communicative, and has a sense of responsibility for the project.	Scientific Research 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	<ul> <li>Experimental and computational examination of genes in cancer and immunology</li> <li>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.</li> <li>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. 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.</li> <li>Project phase: Elements of all three (Design, Discovery, Validation)</li> </ul>

