

ROSWELL PARK CANCER INSTITUTE'S

Cancer Research Experience Program



Opportunities for
Howard University
Students



2019 Program Year

Roswell Park Comprehensive Cancer Center in Buffalo, N.Y. is America's first cancer center and a National Cancer Institute-designated Comprehensive Cancer Center conducting clinical care, research, education, and community outreach. The mission of Roswell Park Comprehensive Cancer Center is to **"understand, prevent, and cure cancer."**



Howard University students accepted into one of the Roswell Park internship Programs will:

- deeply explore their interest in cancer under the direction of active researchers at a leading Comprehensive Cancer Center;
- prepare for graduate education in the cancer sciences by reading cutting-edge scientific literature, participating in an intensive hands-on research experience, developing scientific communication skills, and experiencing the "bench-to-bedside" continuum of modern translational research;
- understand and become empowered to address issues of cancer health disparity in African-American and other underserved communities;
- and learn about the variety of career pathways and research areas within the cancer team, such as prevention, epidemiology, cancer biology, therapeutic development, and clinical research.

PROGRAM OVERVIEW:

Howard Cancer Scholars Program:

Funded by National Institutes of Health (R25CA181003)

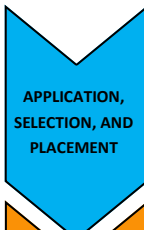
Howard University Sophomores enrolled in the Honors Program and majoring in biology can explore a cancer topic in the field of expertise of a Roswell Park Comprehensive Cancer Center faculty researcher across a variety of disciplines: cancer cellular and molecular biology, cancer biophysics, cancer epidemiology, cancer pharmacology/therapeutics or tumor immunology. Accepted Scholars develop an understanding of their selected research topic through mentored directed readings in preparation for conducting their own project in an immersive funded summer research internship experience. An Honors student successfully completing this program will satisfy Howard University's Honors requirements and will be able to make an informed decision and competitive application to enter a graduate school in preparation for a career in cancer research. Funding support is provided by the National Institutes of Health (R25CA181003)

ELIGIBILITY REQUIREMENTS:

HOWARD CANCER SCHOLARS PROGRAM	
Mentors Available in	Any Cancer Field
Who May Apply	Sophomore Honor Students
When To Apply	November of Sophomore Year
Citizenship	U.S. or Permanent Resident of the U.S.
Pre-Internship	3 Semesters of Tele-Mentored Directed Readings I-III Courses Beginning
Internship	10-week Summer Research Internship at Roswell Park between Junior and Senior Year
Post-Internship	Use summer research as basis for writing an Honors Thesis
Funding	Subsistence allowance
Application Deadline	November 1, 2018
Details & Application	https://www.roswellpark.org/education/summer-programs/

PROGRAM TRACK:

1. SOPHOMORE FALL



Apply Online by November 1, 2018
Identify which mentors match your interests
Roswell Park and Howard University faculty will **place five Cancer Scholars** and match them to mentors

2. SOPHOMORE SPRING



Complete Directed Readings I, II, and III courses under **tele-mentorship** at Roswell Park research faculty

2. JUNIOR YEAR



Read scientific literature relevant to the Roswell Park mentor's field of study, including publications from their laboratory

2. JUNIOR SPRING



Discuss these readings weekly for one hour **via video chat** with the Roswell Park facility or graduate students and postdoctoral fellows in their labs .

3. JUNIOR SUMMER





Upon satisfactory completion of the Directed Reading courses:
Admitted into Roswell Park's summer research program
Conduct your honors research project with your mentor.
Present a cap-stone scientific talk and poster on your summer research project to intern peers

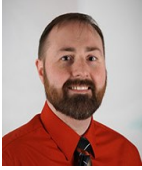
4. SENIOR YEAR




Present an Honors Thesis based on your Roswell park research

MENTOR DIRECTORY:

Department of Cancer Genetics	
	<p>Dr. Joyce Ohm, PhD Assistant Professor of Oncology, Department of Cancer Genetics</p> <p>Research Interests: My laboratory is actively investigating how both genetic and environmental determinants may reprogram the epigenome and contribute to tumor initiation and progression. I currently have an NIH RO1 grant focused on epigenomic remodeling in stem cells and differentiated neural cells following exposures to environmental toxicant exposure as well as an ongoing program looking at epigenetic reprogramming in translocation associated soft-tissue sarcomas. My research lab regularly performs –omics level molecular analysis of normal, pre-malignant, and malignant cell populations including RNA-sequencing, CHIP-sequencing, and global methylation analysis, all of which are key elements of my ongoing research. Our long term goals are to identify novel therapeutic strategies for the treatment of aggressive human cancers based on their molecular profiling.</p>
Department of Cancer Prevention and Population Sciences	
	<p>Dr. Maciej Goniewicz, PhD, PharmD Assistant Professor of Oncology, Department of Health Behavior</p> <p>Research Interests: 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>

Department of Cancer Prevention and Population Sciences	
	<p>Richard O'Connor, PhD Member, Department of Epidemiology & Prevention</p>
	<p>Research Interests: Work in my laboratory focuses on tobacco regulatory science, providing an evidence base for the regulation of tobacco products for the protection of public health. Key active areas of work: Biobehavioral effects of tobacco and nicotine product use Risk perceptions Sensory and subjective effects of flavorings</p>

Department of Immunology	
	<p>Scott Abrams, PhD Professor of Oncology, Department of Immunology</p>
	<p>Research Interests: Our research interests have been devoted to understanding how the immune system achieves or fails to achieve a successful antitumor response. More specifically, our work focuses on mechanisms of tumor escape, immune suppression and immunotherapy. During the course of these studies, our laboratory has defined pivotal roles for interferon regulatory factor-8 (IRF8), a member of the IRF family of transcription factors, in tumor immunology. We have identified previously unrecognized roles for IRF8 in tumor biology. Altogether, our goals are to better understand how the neoplastic process impairs host antitumor immune responses, thereby providing new avenues for prognostic or therapeutic opportunities.</p>


Department of Cell Stress Biology





Sandra Gollnick, PhD


Member, Department of Cell Stress Biology


Research Interests: Dr. Gollnick's research focuses on the yin and yang of inflammation in the progression and treatment of cancer. Chronic inflammation contributes to the development and progression of many cancers, including prostate cancer. Dr. Gollnick's laboratory explores how tumor cells co-opt the host immune system to promote chronic inflammation that leads to increased vascularization, suppression of anti-tumor immunity and increased tumor cell proliferation and migration. The goal of this work is to develop novel therapeutic targets based on increased understanding of the interaction of tumor cells and immune cells. Unlike chronic inflammation, acute inflammation promotes the development of anti-tumor immunity. Many anti-cancer modalities, including radiation, chemotherapy and photodynamic therapy (PDT), result in acute inflammation. PDT is an FDA approved anti-cancer modality used for the elimination of early disease and palliation of late stage malignancies. Dr. Gollnick's laboratory has shown that PDT stimulates anti-tumor immunity that is capable of combating distant disease. Her current focus is on developing clinical protocols for the treatment of head and neck and lung cancers with a goal of providing enhanced tumor control, including control of metastases, with minimal effect of quality of life.

Department of Immunology	
	<p>Joseph Barbi, PhD Assistant Member, Department of Immunology</p>
	<p><i>Research Interests:</i> Regulatory T cells (Tregs) are a critical for suppressing the activation of other immune cells. Through their characteristic suppressive function they prevent the mounting of autoimmune disease and the infliction of excessive collateral damage during immune responses. Unfortunately, the immune restraint provided by Tregs can allow tumors to avoid detection and elimination by the immune system. Depleting or inhibiting Tregs can enhance the killing of tumor cells by the immune system leading to effective control of cancer progression and the improvement of patient survival. The aim of my research is to identify and study the factors influencing the generation, up-keep and function of suppressive Tregs in order to find new strategies to undermine immune suppression in cancer patients.</p>

Department of Immunology	
	<p>Scott Olejniczak, PhD Assistant Member, Department of Immunology</p>
	<p><i>Research Interests:</i> Cell growth and proliferation are both necessary for successful immune reactions and dysregulated in many types of hematological malignancies. For cells to grow and proliferate, dramatic changes in the translation of mRNA to protein must occur.</p>

Department of Medicine	
	<p>Eunice Wang, MD Assistant Member, Tumor Immunology Program</p>
	<p><i>Research Interests:</i> Cell growth and proliferation are both necessary for successful immune reactions and dysregulated in many types of hematological malignancies. For cells to grow and proliferate, dramatic changes in the translation of mRNA to protein must occur.</p>

Department of Pharmacology and Therapeutics	
	<p>Gokul Das, PhD Member, Molecular Pharmacology and Cancer Therapeutics Graduate Program Member, Experimental Therapeutics CCSG (Cancer Center Support Grant) Program Member, Lung DSRG Member, Gynecology DSRG</p>
	<p><i>Research Interests:</i> My lab studies how cell extrinsic signals, such as growth factors or nutrient availability, regulate the process of mRNA translation to facilitate growth and proliferation of normal and malignant immune cells. By gaining insight into the highly regulated process of protein production in normal and malignant cells, we hope to uncover novel opportunities for therapeutic intervention that will preferentially target cancer cells.</p>

Department of Pharmacology and Therapeutics	
	<p>Xinjiang Wang, PhD Member, Molecular Pharmacology and Cancer Therapeutics Graduate Program Member, Experimental Therapeutics CCSG (Comprehensive Cancer Support Grant) Program</p>
	<p><i>Research Interests:</i> The overall goal of our research is to develop novel targeted therapies for leukemia treatment. My lab focuses on cancer relevant E3 ligases, a class of enzymes that regulate protein degradation of key oncoproteins and tumor suppressors. Identification of such E3 ligases and understanding of their mechanisms of action will pave a way for screening of small molecule compounds as novel therapies for cancer. We are using biochemical purification approach for identification of new E3 ligases.</p>

Department of Urology



Dr. Beth Pflug, PhD

Associate Member, Clinical Research

Research Interests: Our laboratory is interested in gaining a better understanding of the growth regulation of prostate cancer and using this information to identify novel therapeutic and imaging targets for this disease. Currently there are several ongoing research projects:

- mechanisms of dysregulation of lipid synthesis via fatty acid synthase (FASN), development of pathway inhibitors and identification of FASN regulated pathways in cancer.
- investigate the role of altered metabolism in prostate cancer to develop an understanding of how re-establishing metabolic flux pathways may control cancer cell growth and to test pathway inhibitors.
- determine the functional consequences of altered translocator protein (TSPO) in cancer progression, investigate the role of TSPO-regulated cholesterol transport during androgen refractory disease progression and develop TSPO as an imaging target for prostate cancer