Mentor: Joyce Ohm, PhD  
Assistant Professor of Oncology

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.

Mentor: Irwin Gelman, PhD  
Professor of Oncology
Member Graduate Faculty, Roswell Park Graduate Division,  
University at Buffalo

Research Interests: My research interests revolve around understanding how tyrosine kinases regulate signaling and cytoskeletal pathways under conditions of cell adhesion and motility, response to growth factors, and oncogenic transformation. The research projects in my lab have a special focus for biologies of cancer recurrence and/or metastasis (cell culture and mouse models), with a special emphasis on identifying and characterizing genes that regulate the aggressive behavior of cancer cells. The translational impact of these projects is in their use of clinical tissue, genomic and medical informatics data to stratify basic scientific findings with predictive clinical outcomes or to identify new therapeutic targets of advanced, metastatic breast and prostate cancer.
Mentor: Maciej Goniewicz, PhD, PharmD
Assistant Professor of Oncology

Research Interests: Dr. Goniewicz’s primary research area is in nicotine pharmacology, with a focus on nicotine dependence and smoking cessation. He has research experience in smoking cessation behavioral treatment, pharmacotherapy, and pharmacokinetics in both clinical and community-based settings. Dr. Goniewicz’s current research is focused on new nicotine-containing products and alternative forms of tobacco. He examines 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 and smoking cessation. He also evaluates implementation of new tobacco control laws and role of community pharmacists in smoking cessation.

Mentor: Sandra Gollnick, PhD
Member, Department of Cell Stress Biology
Distinguished Professor, Department of Immunology
Member Graduate Faculty, Roswell Park Graduate Division, University at Buffalo

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.
Mentor: Elizabeth Repasky, PhD
Professor of Oncology
The Dr. William Huebsch Professorship in Immunology
Member Graduate Faculty, Roswell Park Graduate Division, University at Buffalo

Research Interests: Dr. Repasky’s research program focuses on exploration of physiological (homeostatic) responses which can be manipulated to alter the tumor microenvironment and improve the efficacy of cancer therapies, including immunotherapies. For her research, she has helped to develop improved mouse models for testing novel therapies. A large amount of effort has been placed on understanding the role of body temperature on anti-tumor immune activity and on vascular function.

Mentor: Sharon Evans, PhD
Professor of Oncology
Member Graduate Faculty, Roswell Park Graduate Division, University at Buffalo

Research Interests: The overarching goal of our research program is to investigate the molecular mechanisms that control lymphocyte trafficking across blood vessel walls which are important checkpoints in the development of a fine-tuned adaptive immune response. These studies are particularly relevant to cancer immunotherapy since it is now recognized that the extent of T cell infiltration at tumor sites is a critical determinant of patient responses to immune-based therapies as well as standard chemotherapy and radiation.
Mentor: Joseph Barbi, PhD
Assistant Professor of Oncology

Research Interests: In order for the immune system to function properly, it must be tightly regulated. Failure to do so can inappropriately unleash the immune system’s impressive destructive power. Preventing the collateral damage and autoimmune disease that can result from out-of-control immune activation are a number of safeguards including Regulatory T cells. While these are necessary for immune control, they can also oppose the mounting of robust anti-tumor immune responses, limiting the benefits of many anti-cancer therapies. My research interests focus on the factors and processes that influence Regulatory T cells and other mechanisms of immune control. My lab is exploring the regulatory cell types and processes capable of controlling the immune system with an emphasis on unappreciated factors that may enhance or inhibit their suppressive functions. By advancing our understanding of how certain environmental cues, inflammatory stresses, and metabolic factors influence the mechanisms of immune regulation we will discovery ways to fine-tune immune responses and reveal new targets for future anti-cancer immunotherapies.

Mentor: Scott Abrams, PhD
Professor of Oncology
Member Graduate Faculty, Roswell Park Graduate Division, University at Buffalo

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. Key findings showed that when IRF8 is expressed it acts as a positive regulator of tumor-cell response to certain forms of cell death, as well as a negative regulator of myeloid-derived suppressor cell (MDSC) development. MDSCs are known to be potent inhibitors of antitumor immunity and their production appears to IRF8-dependent. Thus, 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.
Mentor: Mukund Seshadri, DDS, PhD
Associate Professor of Oncology
Member Graduate Faculty, Roswell Park Graduate Division,
University at Buffalo

Research Interests: One of the ongoing projects in the laboratory is focused on investigating the therapeutic potential of a novel combination strategy for castration-resistant metastatic prostate cancer (CRMPc). The high mortality rate associated with CRMPc underscores the critical need to investigate novel treatment approaches that can improve response rates in this patient population. Using clinically-relevant models, the research project will address several key questions of critical importance to the successful clinical translation of this approach. To determine the translational potential of this combination strategy for prostate cancer, we will conduct imaging-guided preclinical trials to characterize the vascular response of tumors to combined androgen deprivation and vascular-targeted therapy. The work is interdisciplinary in nature and draws on concepts from biophysics, cancer biology, pharmacology and molecular biology and clinical oncology.
Mentor: Dhyan Chandra, PhD  
Title: Associate Professor of Oncology  
Member Graduate Faculty, Roswell Park Graduate Division, University at Buffalo

Research Interests: The research focus of Dr. Chandra’s laboratory is to identify and define various mitochondrial regulators of prostate cancer cell death. He also investigates the underlying mechanisms of prostate cancer health disparities among African American and European American men. The ultimate goal of his laboratory is to develop effective agents for prostate cancer therapy by targeting mitochondria.

Mentor: Gokul Das  
Associate Professor of Oncology  
Member Graduate Faculty, Roswell Park Graduate Division, University at Buffalo

Research Interests: Research in my laboratory focuses on crosstalk between estrogen receptors and p53 signaling in breast (luminal and triple-negative breast cancers), lung (non-small cell lung cancer), and ovarian (high grade serous ovarian cancer) cancers. Inactivation of p53 by multiple mechanisms is a frequent event in these cancers. Estrogen receptors alpha (ERα) and beta (ERβ) have important roles in normal and disease physiology of these organs. We have shown that both ERα and ERβ bind p53. Binding of ERα to p53 results in functional inactivation of p53, whereas ERβ-p53 interaction elicits context-dependent effects in cancer cells. We actively pursue opportunities to translate findings from the laboratory by developing innovative retrospective and prospective clinical studies. One such prospective clinical trial to investigate the role of p53 and ERα in breast cancer resistance to tamoxifen therapy is currently underway.
Yue Wu, PhD
Assistant Professor of Oncology
Department of Urology
Member, Graduate Faculty Roswell Park Graduate Division,
University at Buffalo

Research Interests: My research interest is in androgen metabolism and androgen receptor signaling in prostate cancer. Specifically, his research projects are focused on prostatic androgen trafficking and metabolism by prostatic epithelial cells and cancer cells, and how androgen metabolism affects biology and clinical characteristics of prostate cancer. The ultimate goal is to delineate mechanisms underlying the progression of prostate cancer to castration recurrent disease, and to identify novel modalities to prevent or treat castration recurrent prostate cancer.