NACP Mentors for Summer 2022

Name	Email Address	Primary Department	Research Keywords	Research Description	Website
Craig Aspinwall	aspinwal@email.arizona.edu	Chemistry and Biochemistry	Bioanalytical, Chemical Biology, Instrument Development, Protein and Membrane Biochemistry	Biological signaling processes are comprised of diverse molecular species which present a number of chemical and physical challenges with respect to chemical measurement. The most challenging species to measure, and thus the ones whose roles are least defined in signaling pathways are those compounds that lack inherent chemical moieties that are amenable to high sensitivity spectroscopic or electrochemical detection. The majority of our research efforts are focused on the development of biomimetic and biofunctionalized sensor strategies that allow detection of key signaling components, while also proving useful for other key bioanalyses including drug discovery and clinical diagnostics.	https://cbc.arizona.edu/faculty/craig-aspinwall
Agnes Attakai	agnesa@email.arizona.edu	Public Health	Outreach, health disparities, prevention	Current projects include the Southwest American Indian Collaborative Network grant with the Inter Tribal Council of Arizona, Inc., the Center for Health Equality/Project EXPORT with the UA Zuckerman College of Public Health, and the Evaluation of the Hardrock Youth Wellness and Prevention Program with the Navajo community of Hardrock, Ariz.	https://medicine.arizona.edu/person/agnes-attakai-mpa
Jennifer Barton	barton@email.arizona.edu	Biomedical Engineering	imaging, cancer detection, fluorescence, endoscopes, optical	I work on developing novel optical imaging techniques for early detection of cancer. This often involves developing miniature endoscopes to access the tissue of interest. Projects in the lab involve optical design, mechanical design, instrumentation, and software development. We work with human specimens, in vivo human and animal studies.	http://bmeoptics.engr.arizona.edu/
Jennifer Bea	jbea@uacc.arizona.edu	Health Promotion Sciences	body composition, cancer prevention, survivorship, lifestyle interventions	I am a physiological scientist, with specific expertise in on body composition and chronic disease prevention and management, including cancer, diabetes, and cardiovascular disease. I am the Co-Director of the Body Composition Research Laboratory at the University of Arizona and Co-Director of the Behavioral Measurement and Intervention Shared Resource at the University of Arizona Cancer Center. I am an expert in imaging techniques to assess body composition (DXA, CT, MRI), as well as subjective and objective dietary, physical activity, and functional assessments, lifestyle interventions, and circulating biomarkers. I am an active member of NRG/NCORP Cancer Prevention and Control Committee and the University of Arizona Cancer Center Cancer Prevention and Control Program. I have been a Co-investigator on the large multi-site Women's Health Initiative (WHI) study since 2010. I previously directed the University of Arizona Nutrition Network evaluation program among low-income individuals throughout the state. In the past 9 years, I have expanded my work in health disparities beyond older adults and low-income families. I have investigated the influence of soft tissue and metabolic dysfunction on bone development in young, primarily Hispanic girls as Co-I (NICHD R01). As a PI, I have conducted a physical activity intervention among Native cancer survivors (pilot and full projects via NCI U54) which included both qualitative and quantitative analyses in a community engaged research model.	https://cancercenter.arizona.edu/person/jennifer-w-bea-phd
Sam Campos	skcampos@email.arizona.edu	Immunobiology	HPV, viruses, pathways	Human papillomaviruses (HPVs) are the most prevalent sexually transmitted infection and cause 5% of cancers worldwide. These viruses infect and replicate in cutaneous and mucosal epithelium. Proliferating basal keratinocytes are the target cells of initial infection, but the complete viral replication cycle is dependent on the differentiation of infected basal cells as they move upward through the stratified epithelium. We focus on understanding the mechanisms and implications of virus entry and subcellular trafficking during HPV infection, and strive to understand how these processes may contribute to viral persistence. Major projects include 1) identifying the cellular proteins, pathways, and factors required for HPV infection and understanding the mechanistic basis for their role and 2) understanding the viral capsid proteins and their role in infection from a structural/functional perspective. Through these studies we hope to discover new mechanisms of viral membrane penetration, unveil new aspects of cell biology regarding mechanisms of protein trafficking and transport, and identify potential targets for therapeutic and prophylactic intervention.	https://immunobiology.arizona.edu/research/campos-lab
H-H. Sherry Chow	schow@azcc.arizona.edu	Cancer Center	cancer prevention, chemoprevention	Dr. Chow conducts clinical and translational research studies to identify potential targets for cancer prevention and to evaluate chemoprevention strategies. She has led a number of clinical trials to evaluate the potentials of different dietary compounds, repurposed drugs, and modified dosing schedules of established drugs for breast cancer prevention. In addition, she has led a NCI-funded Chemoprevention Consortium to conduct clinical investigations of various pharmaceutical and nutraceutical agents and vaccines for prevention of lung, breast, cervix, prostate, skin, esophageal, and head and neck cancer.	https://cancercenter.arizona.edu/person/hsiao-hui-sherry-chow-phd
Anne Cress	acress@azcc.arizona.edu	Cellular and Molecular Medicine	molecular mechanisms, cancer, cell adhesion	My group studies the molecular mechanisms of human epithelial cancer invasion and metastasis. Specifically, we study the regulation of cell surface molecules (called integrins) and their role in cancer cell adhesion to the extracellular matrix. My research team discovered that laminin adhesion structures are dramatically altered in human cancer resulting in invasion, metastasis, and drug resistance. We have developed three approaches to interrupt cell adhesion to laminin: (1) using cyclized peptides, (2) deploying small molecules, and/or (3) using a function-blocking antibody. Currently we are using gene editing technology to identify inactivating mutations of tumor specific invasion and metastasis receptors.	https://cancercenter.arizona.edu/person/anne-e-cress-phd

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Bernard Futscher	bfutscher@azcc.arizona.edu	Pharmacology and Toxicology	cancer epigenetics, genome	The Futscher lab's primary research focus is cancer epigenetics. We use comprehensive genomic approaches to investigate the epigenomic dysfunction that drives human cancer. The use of genome-wide approaches guarantees the capture of all of the information regarding epigenetic change in human cancer. From this comprehensive data of the normal and diseased human epigenomes, we employ advanced in silico and molecular biological approaches to generate new knowledge and discover the decisive epigenetic events that drive human carcinogenesis. The long-term objective of these studies is the development of epigenetic markers cancer detection, therapy monitoring, prognostication, and the identification of novel targets for molecularly directed cancer therapy.	https://cancercenter.arizona.edu/person/bernard-futscher-phd
Indraneel Ghosh	ghosh@u.arizona.edu	Chemistry and Biochemistry	bioorangic chemistry, chemical biology	The broad objective of our research program in Bioorganic Chemistry and Chemical Biology is to construct protein therapeutics, protein mimetics, biomaterials, and biosensors. Our research at the University of Arizona is highly multidisciplinary and utilizes techniques in organic synthesis, biochemistry, molecular biology, and a host of physical characterization methods. Our research motto is simple: Unraveling mysteries and Enabling discoveries.	https://cbc.arizona.edu/faculty/indraneel-ghosh
Felicia Goodrum	fgoodrum@arizona.edu	Immunobiology	virus, cytomegalovirus, herpesvirus, signaling, membrane trafficking, innate immunity, DNA damage response	Our laboratory has a longstanding interest in the interactions between viruses and host cell biology and the significance of these interactions to the outcome of the infection and to the biology of the infected cell. The major focus of my research program is to understand the virus-host interactions important to human cytomegalovirus (HCMV) infection, and how HCMV manipulates host biology to enter or exit latency. We have identified viral determinants of HCMV latency and reactivations and we are working to understand the cellular pathways they target. This is a compelling question with important human health implications, but also offers a unique conduit to understanding the cell biology important to viral persistence. HCMV a member of the beta-herpesvirus family and has the greatest coding capacity of any virus known to infect humans. It establishes an incurable, life-long infection in its host through a latent state. HCMV latency is an important human health issue because reactivation from latency is a significant cause of morbidity and mortality in the immunocompromised, particularly following stem cell and solid organ transplantation. Further, over the lifetime of the host, persistence of the latent virus is associated with increased risk for age-related pathologies, including heart disease, immune dysfunction and frailty. HCMV is also the leading cause of infectious disease related birth defects and it is estimated that 75% of congenital infections are the result of reinfection or reactivation. We have focused our attention on understanding the program of infection in hematopoietic cells, the viral genes important to regulating latency and reactivation and their host interactions. Aspects of cell biology that we have identified as important to latency and reactivation include: receptor tyrosine kinase signaling, innate signaling, and DNA damage and repair pathway signaling.	https://immunobiology.arizona.edu/research/goodrum-lab
Iman Hakim	ihakim@email.arizona.edu	Public Health	behavior change interventions, cancer prevention, dietary interventions, tea consumption	Dr. Hakim has been the Principal Investigator of several large-scale, behavior change interventions and clinical trials focused on nutrition and cancer prevention, tea consumption and coronary heart disease, chemoprevention of lung carcinogenesis using green tea; dietary interventions to study the effects of tea consumption on smoking-related oxidative stress and role of citrus-cancer association in Mediterranean diet.	https://www.publichealth.arizona.edu/directory/iman-hakim
David Harris	davidh@email.arizona.edu	Immunobiology	cell banking, regenerative medicine, stem cells	Work in the our lab centers on cell banking technologies and regenerative medicine. Dr. Harris is the Executive Director of the AHSC Biorepository. The Biorepository's mission is to provide high-quality and clinically annotated specimens as well as service to the research community involved in biomedical research. In addition to banking biospecimens, the facility serves as a source of cells and tissues for biomedical research and projects involving translational and regenerative medicine. Finally, Dr Harris is also the Quality Director of the University of Arizona GMP Laboratory, which prepares cells and tissues for use in novel clinical trials.	https://immunobiology.arizona.edu/research/harris-lab
Robin Harris	rharris@azcc.arizona.edu	Epidemiology and Biostatistics	Skin cancer prevention, environmental health disparities	Dr. Harris has extensive experience working with community-based epidemiological studies of chronic diseases. At the University of Arizona, her research interests have broadly focused on causes and prevention of cancer, with a primary emphasis in skin cancer. In the area of skin cancer, current research priorities coincide with goals of the Skin Cancer Institute: re-establish a population-based skin cancer registry, implement an integrated patient registry-tissue bank into the clinical services of the Cancer Center, and develop effective community messages about sun protection and early detection. She is currently principal investigator of a project developing and evaluating an innovative educational intervention for teens focused on sun safety text messaging.	https://www.publichealth.arizona.edu/directory/robin-harris
Ronald Heimark	rheimark@u.arizona.edu	Surgery	cancer progression, metastasis	Our goals are to identify molecular pathways that distinguish between localized and aggressive disease investigating mechanisms governing prostate epithelial. Prostate cancers are comprised of distinct cell types driven by genetic instability and cellular differentiation programs. Epithelial-Mesenchymal-transition (EMT) is associated with increased levels of transcriptional repressors, including SNAI1/2, Twist1 and Zeb1/2 and downregulation of epithelial genes and increased motility. Subtypes of EMT are now established that are generated by alternative mechanisms and result in distinct cell populations, including Prostate Cancer Stem Cells. Our research focuses on: identifying suppressor genes associated with regulating EMT pathways and their mechanism; identifying the roles stem cell microRNAs and their target genes.	https://surgery.arizona.edu/profile/ron-l-heimark-phd
Natalia Ignatenko	nai@email.arizona.edu	Cellular and Molecular Medicine	colorectal cancer, proteases, polyamines	My research is focused on the molecular aspects of colon carcinogenesis downstream of the major cancer-causing genes, mutant APC tumor suppressor gene, and K-RAS oncogene.	https://cancercenter.arizona.edu/person/emmanuel-katsanis-md

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Emmanuel Katsanis	katsanis@peds.arizona.edu	Pediatrics	hematopoietic cell transplantation, graft versus leukemia, tumor immunology, transplant immunology, cancer vaccines	My research areas are cancer immunology-immunotherapy and hematopoietic stem cell transplantation. I have a particular interest in haploidentical hematopoietic cell transplantation, cell therapies, and immumodulatory agents. Current work in my laboratory is focused on pre- and post-transplant immune modulation by selective chemotherapeutic agents and their effects on immune reconstitution, viral reactivation, graft-versus-host disease and graft-versus-tumor effects and in development of cancer vaccines.	https://www.pharmacy.arizona.edu/directory/profile/catharine-smith-phd
Kirsten Limesand	limesank@email.arizona.edu	Nutritional Sciences	radiation, autophagy, gland dysfunction	My research program has its foundation in radiation-induced gland dysfunction; mechanisms of damage, clinical prevention measures, and restoration therapies. Evidence suggests that salivary acinar function is compromised due to apoptosis induced by these treatments and temporary suppression of apoptotic events in salivary glands would have significant benefits to oral health. We utilize a number of techniques in my laboratory including: genetically engineered mouse models, real-time RT/PCR, immunoblotting, immunohistochemistry, primary cultures, siRNA transfections, irradiation, and procedures to quantitate salivary gland physiology.	https://nutrition.cals.arizona.edu/person/kirsten-limesand-phd
William Montfort	montfort@arizona.edu	Chemistry and Biochemistry	Structural Biology, Cancer drug development	Currently targeting nitric oxide driven breast cancer	https://cbc.arizona.edu/faculty/william-montfort
Mark Nelson	mnelson@azcc.arizona.edu	Pathology	tumor progression, cancer, racial disparities	Dr. Nelson's research focuses on three main areas: Inflammation and tumor progression/metastasis, Racial disparities and cancer, Molecular diagnosis of cancer and other genetic diseases.	https://pathology.arizona.edu/profile/mark-nelson-phd
Ulises Ricoy	ricoy@arizona.edu	Neuroscience	Neuroscience education and outreach, behavior	Current Lab Interests: 1) How do invertebrates (insects) adapt to their environment? 2) How do invertebrates (insects) move (locomotion) in various settings? 3) Invertebrates as models of natural and drug reward. 4) Examining neural mechanisms involved in these behaviors through videography, electrophysiology, and mathematical modeling approaches. 5) Low cost approaches to study invertebrate behaviors and physiology. 6) Low cost approaches to broadening participation in Neuroscience from historically underserved populations. Specialties: Diversity, Science Outreach, STEM Education, Minority-Serving Institutions, History of Science, Science Identity	https://sites.google.com/view/roachlab/home?authuser=0
Gregory Rogers	grogers@azcc.arizona.edu	Cellular and Molecular Medicine	Centrosome, cancer	For some cancers, genome-wide alterations are not only common but occur early during cancer progression. Genomic instability can arise by multiple means. Notably, defects in centrosomes, the tiny organelles that facilitate cell division, are common in cancer, and cells with abnormal centrosome numbers experience mitotic errors that cause genomic instability. In addition, the extracellular environment of precancerous cells has a profound influence on various processes, such as maintaining cell polarity and the proper orientation of stem cell divisions -- errors in these processes can promote tumorigenesis and progression to metastasis. In collaboration with Drs. Anne Cress and Noel Warfel (UA Cancer Center), we are studying mechanisms that cause genomic instability using a model system developed in-house for that specific purpose (photo). Our goal is to identify specific molecular aberrations that drive genomic instability, and then exploit this knowledge to (1) develop therapeutic interventions that suppress genomic instability and (2) identify new markers that can be used to diagnose early stage cancer cells in patients.	https://rogerslab.arizona.edu/
Catharine Smith	clsmith1@email.arizona.edu	Pharmacology and Toxicology	epigenetics, molecular endocrinology, cancer	Glucocorticoid signaling regulates the immune system, lung function, and metabolism, among other things, and is essential for life. Lysine/histone deacetylases are important regulators of the epigenome and targets of drugs used in treatment of cancer and neurological disorders. The Smith lab studies mechanisms by which the glucocorticoid receptor regulates transcription and discovered that lysine deacetylases facilitate rather then impair glucocorticoid-activated transcription. Our current focus is to understand the mechanism by which this occurs and identify the essential acetylated target proteins.	https://www.pharmacy.arizona.edu/directory/profile/georg-wondrak-phd
Teshia Solomon	solomont@email.arizona.edu	Family and Community Medicine	Cancer prevention, health disparities, community driven research	Dr. Solomon is Associate Professor in the Department of Family and Community Medicine in the College of Medicine at the University of Arizona and was appointed Co-Director of the Native American Research and Training Center (NARTC) in June 2007. She has over eighteen years experience in health-related research and training involving Native American students in public health. She is Principal Investigator and Director of the Faculty and Student Research Development program of the American Indian Research Centers for Health (AIRCH5) as well as Director of the Research Core. She serves as Co-Investigator and Co-Director of the Native American Cancer Program research training initiative and as a co-Investigator on the Community Outreach component with the Arizona Cancer Center.	https://www.fcm.arizona.edu/profile/teshia-g-solomon-phd

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Georg Wondrak	wondrak@arizona.edu	Pharmacology and Toxicology	cancer, oxidative stress, skin photodamage, melanoma, redox drugs	My research examines the pathological role of oxidative stress in solar photodamage and skin cancer (melanoma and nonmelanoma) aiming at the design of novel molecular strategies for redox-directed prevention and therapeutic intervention, investigations with potential relevance to other malignancies with insufficient treatment options including prostatic and pancreatic carcinoma. Based on my international professional training and proven track record in skin solar ultraviolet radiation/photodamage-related biochemical and pharmacological investigations, my research team at the College of Pharmacy and The University of Arizona Cancer Center is well positioned to pursue translational biomolecular investigations that test preventive and therapeutic efficacy of pharmacological modulation of cellular stress response pathways impacting skin photo-damage and photo-carcinogenesis through redox regulatory molecular targets [such as TLR4 (Toll-like receptor 4), NRF2 (Nuclear factor erythroid 2–related factor 2), and GLO1 (Glyoxalase 1)]. Our NCI-funded melanoma-directed research tests feasibility of repurposing clinical redox antimalarials (including artemisinin-endoperoxides) for therapeutic intervention in advanced murine disease models. We are also testing the redox-based cancer-directed activity of diverse small molecule agents modulating the cellular stress response [including hypochlorous acid (HOCl) and deuterium oxide (D2O) causing oxidative and isotopic (heavy atom) disruption].	https://www.pharmacy.arizona.edu/directory/profile/georg-wondrak-phd
Daniela Zarnescu	zarnescu@email.arizona.edu	Molecular and Cellular Biology	RNA processing, metabolic dysregulation, human disease	We research the various steps in RNA processing including transport and translation during normal development and aging of neurons, as well as during the onset and progression of disease. In addition to these basic studies we seek to identify therapeutic strategies for diseases linked to RNA and metabolic dysregulation in the nervous system. Our research utilizes a combination of genetic, molecular, bioinformatics and pharmacological approaches in Drosophila (fruit flies), cultured cells and patient tissues. This “fly-to-man” approach takes advantage of the powerful, genetically tractable fruit fly model to uncover molecular mechanisms that we can subsequently validate in patient tissues.	http://mcb2.arizona.edu/zarnescu/