NIH NATIONAL CANCER INSTITUTE

iCURE

Intramural Continuing Umbrella of Research Experiences (iCURE) – 2025 Possible Projects

This document includes tables listing NCI PIs who have expressed interest in hosting an iCURE scholar. Possible projects or information on their research groups are described in the table but do not represent an inclusive description of all research activities.

If you are interested in working with PIs from the

- **Center for Cancer Research**
- **Center for Global Health (CGH)**
- **Division for Cancer Control and Population Sciences**
- **Division for Cancer Epidemiology and Genetics**

Possible Projects in the Center for Cancer Research (CCR)

Investigator	Scholar Level	Currently Available Research Areas and Projects	Location (In Maryland)
Adjei, Brenda	Graduate Student, Postdoctoral Candidate	The Office of Healthcare Delivery and Equity Research (HDE) supports clinical research teams in the Center for Cancer Research in making their studies more inclusive and effectively engaging with various partners. The HDE's collaborative initiatives aim to improve patient experience, reduce barriers to participating in clinical trials, and increase access, reach and diversity in NCI's intramural clinical research program. Multiple projects designed to meet these goals and strategic priorities are available for an individual with interests in community engagement, health communications, and healthcare delivery. The fellow will conduct listening sessions, focus groups, and key informant interviews with various stakeholders, assist with the execution of patient and partner surveys, and contribute to the preparation of summary reports, resources, and presentations for various audiences based on quantitative and qualitative analyses. This position provides an exciting and unique opportunity to work in a dynamic, interdisciplinary and collaborative research environment and contribute to CCR's commitment to inclusive clinical trials. https://ccr.cancer.gov/office-of-healthcare-delivery-and-equity-research	CCR Bethesda
Aladjem, Mirit	All	The DNA Replication Group at the NCI's Developmental Therapeutics Branch investigates cellular signaling pathways that monitor and direct DNA synthesis. Since many regulatory networks affecting chromosome duplication are deregulated in cancer, such studies can help portray critical aspects of cancer biology and elucidate the cellular responses to chemotherapeutic drugs. Specifically, our studies use a combination of biochemistry, cell biology and bioinformatics to reveal regulatory pathways that coordinate chromosome duplication with gene expression, chromatin condensation and cellular stress responses to preserve genomic stability. https://ccr.cancer.gov/Developmental-Therapeutics-Branch/mirit-i-aladjem	CCR Bethesda

Aldrich, Leslie	Post-Baccalaureate, Postdoctoral Candidate	Our primary research focus is the discovery and development of small-molecule modulators of challenging biological targets and pathways. A major area of interest is the autophagy pathway, which is important for metabolism and cellular homeostasis. Recent efforts to target autophagy in cancer have focused on late-stage inhibition with compounds that disrupt lysosome function, which is not specific for autophagy, or early-stage kinase inhibition, which has led to molecules that lack specificity due to the multiple roles of the kinases involved in the autophagy pathway. For example, the lipid kinase VPS34 is present in two multi-protein complexes, and inhibition of VPS34 enzymatic activity inhibits both autophagy and vesicle trafficking due to inhibition of both complexes. An alternative approach to potentially provide selective autophagy inhibitors is to target key protein-protein interactions that are required for the initiation of autophagy. We recently identified a small-molecule inhibitor of the Beclin1-ATG14L protein-protein interaction, which is required for the formation, proper localization, and function of VPS34 Complex I, that does not affect the Beclin1-UVRAG protein-protein interaction found in VPS34 Complex II, and thus does not cause vesicle trafficking defects like treatment with VPS34 inhibitors. Additionally, our group has developed a high-throughput screen to identify small-molecule inhibitors of the ATG5-ATG16L1 protein-protein interaction, which is involved in LC3 lipidation and autophagosome formation. Current work in our lab combines several interdisciplinary approaches, including medicinal chemistry to improve the properties/potency of initial hits, chemical biology to study binding modes of the small molecules with target proteins and the impact of protein-protein interaction inhibition on the autophagy pathway and other cellular pathways, and cell biology to evaluate the efficacy of autophagy inhibition as a therapeutic strategy in cancer. https://ccr.cancer.gov/staff-directory/leslie-n-aldrich	CCR Frederick
Batista, Pedro	All	The primary objective of our lab is to investigate how RNA post-transcriptional modifications, known as the epitranscriptome, enable tumor cells to evade treatment. To achieve this, we use genome engineering techniques and patient-derived tumor cell lines as model systems. Currently, we are focusing on the role of RNA-binding proteins in mediating tumor cells' resistance to natural killer (NK) cell cytotoxicity. Ultimately, our research aims to identify novel therapeutic targets for cancer treatment. https://ccr.cancer.gov/staff-directory/pedro-j-batista	CCR Bethesda
Bhandoola, Avinash	Graduate Student, Postdoctoral Candidate	The project follows up on our studies indicating that bone marrow but not splenic plasma cells depend on extracellular ATP, released by Panx3 that binds P2rx4 on plasma cells (Ishikawa et al., Nature, 2024). It is a collaboration with my colleague David Allman at the University of Pennsylvania. One set of proposed studies would extend our observations of plasma cells to niches other than bone marrow and spleen, beginning with intestinal plasma cells. Other select subsets of plasma cells are present in meninges, thymus, and inflammed joints, all of which we wish to assess. Another set of proposed studies addresses transformed plasma cells,	CCR Bethesda

		termed multiple myeloma. We wish to determine whether at least some human myelomas remain sensitive to inhibition of P2rx4, suggesting drugs that target P2rx4 might be a potential treatment for this disease. Thus, we wish to determine if human myeloma cells remain sensitive to P2rx4 inhibition, and whether P2rx5 might also be implicated in the survival of multiple myeloma, as suggested by early collaborative studies with Ryan Young at the NCI. https://ccr.cancer.gov/staff-directory/avinash-bhandoola#research	
Boxer, Lisa	All	The Boxer lab studies chromatin and epigenetics in brain development and how mutations in chromatin regulators lead to neurodevelopmental disorders and cancer. Current projects in the lab focus on the specific types of DNA methylation found in neurons and the proteins associated with these modifications. In most differentiated cell types, DNA methylation is found primarily in the CG sequence, but during postnatal brain development, neurons accumulate high levels of CA methylation and CG hydroxymethylation. Mutations in the known writers, readers, and erasers of these modifications cause neurodevelopmental disorders and cancer, but the function of these modifications in neurons is not understood. One project in our lab uses molecular and genomic approaches to understand the function of these specific types of DNA methylation in neurons. We are investigating why these modifications accumulate specifically in neurons, what proteins associate with these modifications, how these modifications regulate transcription and genome integrity, and how disruption of these modifications leads to neurodevelopmental disorders and cancer. Another project focuses on a specific methyl-DNA-binding protein, MeCP2. Loss-of-function mutations in MeCP2 cause the neurodevelopmental disorder Rett syndrome, and MeCP2 is overexpressed in multiple cancers. To investigate the function of MeCP2, we developed an approach to rapidly degrade the MeCP2 protein in the mouse brain. We are using this system to distinguish the primary and secondary consequences of acute loss of MeCP2. These experiments will lend insight into the primary function of MeCP2, and this approach can be broadly applied to other chromatin regulators implicated in neurodevelopmental disorders and cancer. https://ccr.cancer.gov/staff-directory/lisa-d-boxer	CCR Bethesda
Daar, Ira	Post-Baccalaureate	The student will be taught to use the Xenopus (Frog) system and the project will involve completing the functional and molecular characterization of the cellular and developmental effects mediated by the EphrinB transmembrane Eph ligand and Wnt pathway proteins. EphrinB and Wnt receptor mutants will be expressed in developing embryos to determine structural motifs that are important for EphrinB and Wnt receptor-induced developmental effects. EphrinB and Wnt pathway molecules will be co-expressed with proteins found to be associated with EphrinB. The ability of	CCR Frederick

		these proteins to physically interact and modulate EphrinB-induced developmental effects will also be assessed. https://ccr.cancer.gov/staff-directory/ira-o-daar	
Dalal, Yamini	All	Micronuclei are strongly associated with degeneration of the nucleus in human aging, cancer and other diseases. We are interested in studying micronuclei purified from human cells, in order to understand mechanistic and mechanical forces driving chromosome instability in senescence-associated cancers. Our research team is composed of a diversity of award-winning and friendly colleagues engaged in intellectually and technologically cutting edge interdisciplinary research, with a singular expertise in atomic force microscopy to visualize chromosome and nuclear dynamics. A highly motivated graduate student, postdoc or postbac fellow is welcome to join our eclectic group to take ownership of an exciting and impactful project in chromosome cancer biology. https://ccr.cancer.gov/staff-directory/yamini-dalal	CCR Bethesda
Gonatopoulos-Pournatzis, Thomas	All	"Alternative pre-mRNA splicing is a dynamic process that enables a single gene to produce multiple mRNA and protein variants, driving transcriptomic and proteomic diversity. Remarkably, over 10% of pathogenic mutations affect alternative splice site activation, and dysregulation of splicing has been implicated in complex diseases, including cancer. Despite its significance, many human alternative exons remain poorly understood, both in terms of their functional roles and the regulatory mechanisms controlling them. Our research group develops and applies cutting-edge functional genomics approaches to study the regulation and biological impact of pre-mRNA processing. We focus on addressing two critical questions: 1. Identifying Functionally Relevant Alternative Exons We aim to uncover which alternative exons in the human genome are functionally significant and contribute to phenotypes associated with cancer, particularly renal cell carcinoma. 2. Decoding the Regulatory Mechanisms of RNA Processing We investigate the factors that control—or misregulate—RNA processing decisions in cancer cells, with the goal of identifying novel regulatory pathways and potential therapeutic targets. If you are interested in these fundamental questions and would like to learn more about our work, please contact Thomas Gonatopoulos-Pournatzis at thomas.gonatopoulos@nih.gov. https://ccr.cancer.gov/staff-directory/thomas-gonatopoulos-pournatzis	CCR Frederick

Hannenhalli, Sridhar	All	We are a purely dry lab with expertise in computational and statistical methods, machine learning, and analysis of a variety of high-throughput omics data. We strongly believe in team science and welcome collaborations. We are broadly interested in Cancer Gene Regulation. Our projects are organized into four broad areas: (1) Transcriptional heterogeneity, cellular plasticity, and regulatory mechanisms underlying oncogenesis, metastasis, and therapy response, (2) Developmental and homeostatic origins of cancer, (3) Development of deep learning models to identify functional non-coding polymorphisms and mutations underlying cancer, and (4) Intrinsic and extrinsic context-specific functionality of genes and cells. https://ccr.cancer.gov/staff-directory/sridhar-hannenhalli	CCR Bethesda
Heske, Christine	Post-Baccalaureate, Postdoctoral Candidate	The Translational Sarcoma Biology Section of the Pediatric Oncology Branch is seeking collaborative, inquisitive, and committed applicants to join our team and be part of bench-to-bedside efforts to improve outcomes for patients. The focus of our lab is to elucidate and target the mechanisms behind therapeutic resistance in pediatric-type sarcomas, especially as related to tumor metabolism and DNA damage repair. Our group conducts translational studies in sarcoma biology, which range from basic to clinical research. Our goal is to identify exploitable vulnerabilities specific to sarcoma cells, characterize and evaluate them in relevent disease models, and bring the most promising novel agents and combinations into early phase clinical trials for our patients. As a mentor, I am dedicated to fostering a collaborative research environment that values respect, communication, and diversity of ideas. For more information on our lab and work, see: https://ccr.cancer.gov/staff-directory/christine-m-heske/lab#about For more in-depth project specifics, please feel free to reach out to me by email: christine.heske@nih.gov https://ccr.cancer.gov/staff-directory/christine-m-heske	CCR Bethesda
Ho, Mitchell	All	Our lab studies cell surface glypicans as new cancer therapeutic targets, with a focus on the generation of antibody engineering-based immunotherapies. Our area of research ranges from the investigation of molecular and cellular mechanisms by which glypicans such as GPC1, GPC2, and GPC3 regulate Wnt and Yap signaling to the design of antibody and T cell-based therapeutics. We established mammalian cell display technology and built shark and camel single-domain antibody phage libraries as new high-throughput protein engineering tools to advance drug discovery. The immune therapeutics, including CAR-T cells, created in our laboratory, are being tested at clinical stages for treating liver cancers, pediatric cancers, mesothelioma, and other cancers. We are committed to inclusivity and diversity in laboratory research. https://ccr.cancer.gov/staff-directory/mitchell-ho	CCR Bethesda

Khare, Anupama	All	Our lab is interested in dissecting the mechanistic basis of complex microbial behaviors, with the ultimate goal of defining novel targets for designing antimicrobial treatments. We are specifically interested in identifying the molecules and genetic pathways that underlie interactions between different bacterial species in a polymicrobial community, and how these affect fitness and community dynamics. Our lab also studies the evolution of antibiotic resistance. https://ccr.cancer.gov/staff-directory/anupama-khare	CCR Bethesda
Koivomagi, Mardo	Post-Baccalaureate	The overarching goal of our research is to determine the biochemical mechanisms cyclin-dependent kinase use to control cell division. Specifically, much of our current effort is aimed at understanding how the first steps in cell division are controlled and to use the gained knowledge for finding novel therapeutics against cancer. New projects in the laboratory build upon our previous work. Basis for the first project is the discovery of a novel mechanism by which cyclin-dependent kinases drive G1-S transition. This highly unexpected finding linked cell cycle for the first time directly to transcriptional activation of G1/S genes and contrasts with the prevailing model that RNA Polymerase II phosphorylation is merely a basal step in transcriptional activation. In our future research we want to understand more thoroughly how cell cycle cyclin-Cdk complexes are recruited to specific promoters, how they regulate gene expression and study if there are other promoter-specific kinases capable of regulating RNA Polymerase II. The second project builds upon our previous work identifying a novel helix-based docking mechanism for cyclin D, a key driver of cell cycle entry whose major target is the retinoblastoma protein Rb. This finding allows us to search for other substrates potentially using the same docking mechanism to understand the fundamental molecular mechanisms controlled by these kinase complexes. In addition, we are trying to find novel therapeutics that target this novel type of interaction between cyclin D and Rb. To get more insight about the ongoing and starting research in our lab, please visit: https://ccr.cancer.gov/staff-directory/mardo-koivomagi	CCR Bethesda
Krishna, Sri	All	Metastatic solid tumors remain the leading cause of cancer deaths worldwide. Cancer immunotherapies have provided the promise of long durable regressions for some types of solid tumors. However, many metastatic solid epithelial tumors, including colon, rectal, breast, ovarian and pancreatic cancers, do not respond well to immunotherapies. Central to the success of cancer immunotherapies including T cell-based therapies lie in the 1) accurate identification of antitumor T cells, 2) overcoming profound T cell exhaustion within tumors, and 3) overcoming resistance mechanisms employed by tumors. At the NCI Surgery Branch, we have a unique	CCR Bethesda

		research environment where basic scientists and clinicians interact to develop unique personalized immunotherapies targeting each patient's tumors. My lab is focused in utilizing this unique human patient samples to discover basic immune principles to understand tumor immunology and develop next-generation immunotherapies. Below are potential projects: 1. We are interested in studying the phenotypic states of antitumor T cells targeting tumor mutations (neoantigens) in humans. These investigations include basic research studies to identify the various states that antitumor T cells can attain across space and time within a human along with primary tumor resistance mechanisms to escape our cell therapies. 2. We are interested in studying and reversing exhausted antitumor T cells from human patient-derived samples through genetic, epigenetic, and immune manipulation. 3. We are interested in identifying antitumor T cell receptors (for TCR therapy) against tumor drivers that are shared across patients (including against viral antigenss to develop "off-the-shelf" gene engineered cell therapies for patients with cancer. Keywords: Cancer Immunology and Immunotherapy, T cell dysfunction, Adoptive Cell therapy, Cancer Vaccines, Neoantigens, TCR therapy, Gene therapy https://ccr.cancer.gov/staff-directory/sri-krishna	
Larion, Mioara	Postdoctoral Candidate	One postdoctoral position is available in the Larion laboratory at the Neuro-Oncology Branch, National Cancer Institute. The laboratory is focused on understanding the metabolic changes in brain tumors. In particular, we are interested in revealing the lipid alterations of isocitrate dehydrogenase (IDH1)-mutated gliomas and in exploiting these deregulations for therapeutic applications. We employ a combination of methods such as molecular biology, animal models, as well as in vitro and in vivo metabolomics using Raman Imaging Microscopy, and Mass Spectrometry (MS). The postdoctoral fellow will explore the link between lipid gene alterations in brain tumors and their biology. This position requires expertise in Western Blotting, mammalian cell culture and other common biomedical techniques used in cancer biology labs such as handling tissue samples, preparing tissue slides, staining, and extracting of proteins from brain tissue. https://ccr.cancer.gov/staff-directory/mioara-larion	CCR Bethesda

Lazarevic, Vanja	All	Our laboratory investigates the dynamic immune cell interactions in the meninges and the central nervous system (CNS). Utilizing a multidisciplinary approach, our research aims to mechanistically understand how transcription factors influence the behavior and adaptation of innate lymphoid cells (ILCs) and CD4+ T helper cells within the CNS environment. Our objective is to pinpoint molecular pathways in ILCs and T cells that are key drivers of neuroinflammation and neurodegeneration. Current projects: Transcriptional regulation of CD4+ T cell responses in autoimmunity: This project examines the molecular underpinnings governing the developmental plasticity and tissue adaptation of CD4+ T helper cells. Utilizing the experimental autoimmune encephalomyelitis (EAE) model of multiple sclerosis, we focus on identifying key transcription factors and their gene targets that orchestrate inflammatory responses in the CNS. Immunoregulatory role of ILCs in the CNS: The CNS is an immune-privileged site that carefully regulates interactions with immune cells to protect neurons from inflammation. However, the meninges and CNS bone marrow niches are populated by diverse immune cells engaged in immunosurveillance. Despite this presence, CNS borders act as selective gateways, controlling immune cell entry into the parenchyma. Our research aims to understand how these interactions at CNS borders impact immune responses in CNS autoimmunity. Our previous studies revealed that T-BET-dependent NKp46+ ILCs regulate adaptive immune responses in the meninges, influencing the reactivation and stability of myelin-reactive CD4+ Th17 cells. This project focuses on understanding the functions and regulatory mechanisms of ILCs, particularly in the meninges, exploring their tissue origin, and their role in maintaining CNS integrity and contributing to neuroinflammatory diseases. https://ccr.cancer.gov/staff-directory/vanja-lazarevic	CCR Bethesda
Linehan, W. Marston	All	The CCR Clinical Cancer Metabolism Facility (CCM) is housed within NIH Building 10 for the conduct of metabolomics studies and metabolic imaging with a focus on isotope-resolved analysis of clinical samples and patient-based studies. The Mass Spectrometry and Sample Preparation Core Facility is geared toward targeted, ultra-high resolution stable isotope-resolved metabolomics as well as careful sample extraction and preparation methodologies. The Clinical NMR Metabolomics Facility is equipped with a powerful 700MHz magnet with probes available for both targeted, isotope-resolved studies of polar and non-polar metabolite and lipid extracts, as well as high-throughput untargeted discovery by virtue of a high-capacity chilled	CCR Bethesda

		autosampler. Pre-clinical metabolic imaging resources are available for dynamic small animal metabolic imaging via Dynamic Nuclear Polarization (hyperpolarization) as well as non-hyperpolarized deuterium and 13C metabolic imaging using image deconvolution algorithms developed at CCR. Finally, clinical 13C-hyperpolarized metabolic imaging is made possible via a specialized 13C MRI scanner with custom-made 13C coils and clinical polarizer located in the Molecular Imaging Branch. Project 1: Trainees will take on isotope-resolved metabolomics and multinuclear MRI-based projects directed toward identifying altered central metabolic pathways in human cancers with the goal of selecting rational therapeutic strategies and novel diagnostic imaging contrasts based on the unique metabolism of human tumors. There are also opportunities for assay and method development on both the high resolution Orbitrap-based mass spectrometry platforms, NMR-based method development and pulse sequence optimization, development and adaptation of multinuclear MRI imaging strategies, and utilization of EPR oximetry imaging for measurement of tissue oxygen concentrations in vivo. Project 2: The Linehan Lab is investigating the efficacy of therapeutic agents in our RCC cell models, with a particular focus on fumarate hydratase-deficient RCC in patients affected by Hereditary Leiomyomatosis and Renal Cell Cancer, and FLCN-deficient RCC in patients affected by Birt-Hogg Dube syndrome. We utilize small-scale screens to investigate novel targeted agents in the lab, and in collaboration with the National Center for Advancing Translational Science (NCATS), we perform high throughput drug screening utilizing a library of FDA approved drugs and compounds. The most effective agents are further investigated in 3-D spheroid assays, anchorage-independent growth assays, invasion assays, and finally *in vivo* in xenograft models. These methodologies have already proved successful, with publications in *Cancer Cell*, *Oncotarget*, *J Exp Clin Cancer Res,* and others, and we have numerous models that require further investigation. https://ccr.cancer.gov/staff-directory/daniel-r-crooks; https://ccr.cancer.gov/staff-directory/w-marston-linehan	
Lipkowitz, Stan	All	My laboratory investigates signal transduction pathways that regulate growth and programmed cell death in breast cancer cells. Our goal is to integrate laboratory and clinical research findings into mechanism-based, hypothesis-driven clinical trials for patients with breast cancer. There are three ongoing projects in my laboratory each with basic and translational components. 1) Regulation of signaling by Cbl proteins. In this project we are focused on inhibitors of Cblb, which increase immune mediated killing of tumors due to activation of the T Cell costimulatory pathway. 2) Tumor Necrosis Factor Related Apoptosis Inducting Factor (TRAIL) as an apoptosis induced in triple negative breast cancer (TNBC). We have shown that a subgroup of	CCR Bethesda

		TNBC cell lines are most sensitive to TRAIL- induced apoptosis and are exploring the mechanisms underlying sensititity or resistance to TRAIL. 3) CLPP agonists as treatment for breast cancer. We demonstrated that a family of drugs inhibits breast cancer cells by imparing their mitochondrial function. We are conducting preclinical studies to bring these to the clinic. https://ccr.cancer.gov/Womens-Malignancies-Branch/stanley-lipkowitz	
Monteiro, Diana	Graduate Student, Postdoctoral Candidate	The Monteiro Lab is looking for an iCURE scholar to join our team and pursue a project in protein crystallography/organic chemistry for drug discovery. We're looking for applicants with either a background in biochemistry/biophysics/molecular biology or organic chemistry with an interest in drug discovery from structure-activity relationships. The project will consist of expressing, purifying and crystallizing an oncogenic drug target, characterization using biophysical techniques (e.g. DSF, ITC, MS), collecting diffraction data and solving the structure and determining structure-activity relationships either by high-throughput compound screening or from specific protein-ligand complexes. The project will then progress into a lead compound design stage with activity/binding studies for characterization. Our group has state-of-the-art robotics to aid and streamline protein crystallography, strong connections to accelerator facilities for access to high-brilliant X-rays for data collection on large numbers of samples and collaborations across NCI and CCR for translational purposes. https://ccr.cancer.gov/staff-directory/diana-cf-monteiro	CCR Frederick
Nguyen, Rosa	Graduate Student, Postdoctoral Candidate	CAR T-cell therapy is an exciting new treatment modality for diffuse midline gliomas, such as diffuse pontine glioma (DIPG). DIPG is a devastating brain cancer of early childhood with less than 10% survival rate beyond 5 years. Anti-GD2 CAR T-cells have shown in trials to decrease tumor burden and improve clinical symptoms in patients with DIPG. However, further improvement of this treatment is needed to increase objective responses. DIPG is an immunologically "cold" tumor. We will use focused ultrasound to bridge the blood-brain barrier and enhance GD2-CAR T-cell delivery to the tumor. We will also leverage hyperthermia by ultrasound to remodel the tumor microenvironment and enhance the anti-DIPG immune response. Selected skills and knowledge learned through this project: stereotactic brain tumor implantation, Omaya catheter implantation in the brain, CAR T-cell manufacturing and design, CAR T-cell correlative studies, tumor immunology, blood-brain barrier biology, focused ultrasound application, imaging acquisition and analysis skills. https://ccr.cancer.gov/staff-directory/rosa-nguyen	CCR Bethesda

Niethamer, Terren	All	Respiratory disease is a leading cause of death worldwide. This includes chronic lung diseases; infections such as influenza and COVID-19; pediatric lung disease associated with premature birth; and lung cancer, which accounts for over 20% of all cancer deaths. After injury, the normally quiescent lung activates progenitor cells to regenerate the tissue and reestablish its major function, gas exchange with the external environment. However, regeneration is a lengthy process that does not always restore full function. To combat lung disease and improve human health, we must improve existing regenerative strategies and pursue new therapeutic avenues in the lung. My laboratory studies the complex interactions between the pulmonary epithelium and the endothelial cells (ECs) lining capillaries in the lung. Interactions between these cells form and maintain the gas exchange interface of the lung alveolus. We and others have recently discovered that after lung injury, a subpopulation of injury-associated capillary ECs arises. These ECs express inflammatory marker genes, genes associated with the fetal or immature lung, and genes associated with hypoxia and a switch to glycolytic metabolism. Many of these changes are also associated with cancer cells. This project will use mouse genetics, mouse lung injury models, and primary human cells to determine the role of inflammation and hypoxia in changes to lung EC fate and function. We will determine the role of interferon signaling in inducing aberrant EC fates, the function of hypoxia and hypoxia-induced genes, and the effects of changing EC metabolism on the overall response to tissue damage in the lung. We will use this knowledge to define factors that can shift the balance from dysplastic towards functional regeneration and improve repair of diseased lung tissue. Ultimately, this work will lead to the identification of novel strategies for targeting the lung endothelium to improve respiratory health. https://ccr.cancer.gov/staff-directory/terren-k-niethamer	CCR Frederick
O'Keefe, Barry	Postdoctoral Candidate	The Protein Chemistry and Molecular Biology Section (PCMBS) of the Molecular Targets Program (MTP) offers and inclusive, successful, and invigorating research experience on the interface of biochemistry/molecular biology and natural products discovery. The project offered is centered on the discovery and characterization of new potential biotherapeutics from a unique library of partially-purified marine aqueous natural product samples. The library (~100,000 samples) will be tested in MTP bioassays in our high throughput screening laboratory to identify potential anti-cancer activities. The successful iCURE researcher will work with dedicated, experienced PCMBS personnel to isolate, characterize, sequence and potentially recombinantly express in E. coli, novel proteins and peptides with potential anticancer activity. We have already begun screening the library for activity against mesothelioma and	CCR Frederick

		will be screening it in additional assays (both cell-based and biochemical) starting next year. The MTP and PCMBS are well equipped and staffed in protein chemistry, natural products chemistry, bioassay development, high throughput screening, functional genomics, and chemical biology. We are a very interdisciplinary laboratory that offers a broad research experience to iCURE candidates. https://ccr.cancer.gov/staff-directory/barry-r-okeefe	
Ruiz Macias, Sergio	All	Our program within the Laboratory of Genome Integrity is interested in understanding the molecular mechanisms driving cell fate decisions. For this, we use human and mouse embryonic stem cells (ESCs) as well as mouse embryos to study cell plasticity, pluripotency and differentiation. We leverage the use of these in vitro and in vivo models to get a better comprehension of embryonic development, cell transformation and cancer. In the last few years we focused our efforts to study the molecular determinants of totipotency, the cell state of maximum developmental plasticity on which a single cell can originate a whole organism and is associated to early blastomeres in the embryo, mainly those found in the 2-cell embryo in mice. Our current projects examine the role of new regulators involved in the acquisition and the exit from totipotency and the relevance of the genome architecture in these transitions. https://irp.nih.gov/pi/sergio-ruiz-macias	CCR Bethesda
Schnermann, Martin	All	This project will apply in vivo optical imaging to the design of new ADC chemistry. While the potential of ADCs has been validated, existing agents have proven much more toxic than anticipated. Critically, much of this toxicity is mAb target-independent and due to deleterious effects of the payload and linker. Our approach applies new imaging probes to the development of strategies addressing questions in the field of ADC design. These include: 1) What role do payload properties and labeling chemistries have on tumor and off-target distribution? 2) Are linkers activated by the tumor microenvironment preferred to those cleaved after internalization? We are translating efforts from these imaging studies into the design, synthesis and testing of novel linker-payload combinations. These studies will combine insights and techniques ranging from natural products and fluorophore synthesis to cellular and in vivo characterization. We are creating novel hydrophilic ADC payloads designed to maintain mAb tumor-targeting properties, but then be converted to cell-permeable active species following tumor localization. These will be applied with the novel linkers and optimized conjugation chemistry that will be defined through our imaging studies. Overall, our goal in these studies is to establish an “imaging-first” workflow for the design and testing of novel targeted drug delivery agents. https://ccr.cancer.gov/staff-directory/martin-j-schnermann	CCR Frederick

Thomas, Anish	All	Small cell lung cancer is one of the most recalcitrant and chemo-resistant cancers affecting >30,000 individuals in US alone. Most patients with SCLC die within a year of their diagnosis. We have a number of spanning basic, translational, and clinical focusing on SCLC. On the basic side we investigate novel drugs aiming to understand their mechanisms and determinants of response with the goal of clinical translation. On the translational side, we seek to understand and define subtypes of tumors that are most likely to respond to specific therapies, using tools such as WGS, RNA-seq, methylation, scRNA etc on tumor and ctDNA datasets. On the clinical side, we conduct clinical trials of cutting edge therapeutics with a focus on agents targeting DNA replication, repair, and chromatin remodeling. Overall, our findings have contributed to the understanding that SCLC is not just one disease but many subtypes, each with its own vulnerabilities. More recently, we have started to learn about the drivers of SCLC heterogeneity and plasticity between subtypes. Cancer Cell 2021, J Clin Oncol 2018, JAMA Oncol 2023, Clin Cancer Res 2023, Nat Commun 2021, Sci Transl Med 2021, bioRxiv 2023, Cancer Discovery 2023, Cell Rep Med 2024. Our trainees have been recognized by ASCO Young Investigator Awards, International Association for the Study of Lung Cancer (IASLC) Early Career Award, NIH Physician-Scientist Early Investigator Award, Lasker Clinical Research Scholar Award, NCI Pathway to Independence Award for Outstanding Early Stage Postdoctoral Researchers (K99/R00), and have presented their findings at oral presentations at the World Conference on Lung Cancer (WCLC) and the American Association for Cancer Research (AACR) annual meetings. I received the 2022 NCI Director's Outstanding Mentor Award, and the 2024 NIH Postbac Mentor of the Year Award. https://ccr.cancer.gov/staff-directory/anish-thomas#research	CCR Bethesda
Valkov, Eugene	Post-Baccalaureate, Postdoctoral Candidate	Our laboratory focuses on unraveling the molecular mechanisms governing messenger RNA (mRNA) stability, with a particular emphasis on mRNA-based therapeutics. As a junior researcher, you will contribute to an exciting project at the forefront of this rapidly evolving field. Key aspects of the project are as follows: Objective: Develop an optimal set of parameters to control the stability and expression of synthetic mRNA for therapeutic applications. Methodology:	CCR Frederick

		- Utilize cutting-edge, high-throughput sequencing techniques - Combine sequencing with in vitro biochemical assays - Analyze large datasets to identify key factors influencing mRNA stability Industry Collaboration: Work alongside pharmaceutical partners, gaining invaluable experience in translational research and drug development processes. Impact: Contribute to the advancement of mRNA-based therapeutics, a revolutionary approach in treating cancer and other diseases. Skill Development: - Hands-on experience with state-of-the-art sequencing technologies - Data analysis and bioinformatics - Experimental design and execution of biochemical assays - Collaboration with industry professionals This project offers a unique opportunity to participate in groundbreaking research that bridges fundamental molecular biology and real-world therapeutic applications. You will gain comprehensive experience in a field that represents the future of personalized medicine and targeted therapeutics. https://ccr.cancer.gov/staff-directory/eugene-valkov	
Wolf, Matthew	Post-Baccalaureate, Postdoctoral Candidate	This project is in the Cancer Biomaterials Engineering Section at NCI Frederick. My lab investigates immunomodulatory biomaterials for use in next-generation cancer immunotherapies. We aim to integrate immunomodulatory biomaterials with immune oncology – the study of the immune system's role in recognizing and fighting cancer. This project aims to study how biomaterial scaffold properties such as architecture and composition affect immune cell recruitment and activation. These findings are applied in a cancer immunotherapy delivery and tissue repair, in vivo. This project has a strong emphasis on cancer immunology, using techniques such as FACS, confocal imaging, and gene expression analysis. Our goals are translational, ultimately to develop strategies that merge tissue repair and cancer therapy after tumor surgery. https://ccr.cancer.gov/staff-directory/matthew-t-wolf	CCR Frederick
Wolin, Sandra	All	We study how noncoding RNAs function, the RNA surveillance pathways that remove defective and harmful RNAs and the mechanisms by which defects in these pathways contribute to diseases such as cancer and autoimmunity. Our approach is	CCR Frederick

		multidisciplinary, as we combine molecular biology, genetics, biochemistry and structural biology to discover novel functions for noncoding RNAs and to identify novel RNA surveillance pathways. Projects include deciphering the functions of novel noncoding RNAs and studying how RNA surveillance pathways contribute to disease. https://ccr.cancer.gov/staff-directory/sandra-l-wolin	
Yang, Chunzhang	All	Glioma, particularly glioblastoma (GBM), is an aggressive brain cancer with a poor prognosis and limited treatment options. Current therapies—surgery, radiation, and chemotherapy—primarily provide palliative care, leading to minimal disease control and limited improvements in patient survival. Factors contributing to these poor outcomes include genomic heterogeneity, the infiltrative nature of the tumor, and a complex tumor microenvironment. Additionally, gliomas exhibit robust resistance mechanisms, mainly through enhanced DNA repair pathways and dysregulated cell cycle checkpoints, allowing cancer cells to evade treatment. To tackle these challenges, our research team is conducting genome-wide CRISPR guide RNA screens to identify novel biomarkers linked to therapy resistance in glioma. This approach aims to uncover vulnerabilities within glioma cells that can be targeted for more effective therapies. Preliminary results suggest that cell cycle-related kinases play a crucial role in establishing therapy resistance. Our current project goal is to validate these therapeutic vulnerabilities in cell culture and preclinical animal models. The prospective scholar will be actively involved in ongoing genetic screens, managing glioma cell lines, and validating potential therapeutic compounds. This hands-on research will deepen our understanding of glioma biology and facilitate the development of next-generation therapeutics, ultimately aiming to improve outcomes for patients facing this challenging disease. https://ccr.cancer.gov/staff-directory/chunzhang-yang	CCR Bethesda

Possible Projects in the Center for Global Health (CGH)

Investigator	Scholar Level	Currently Available Research Areas and Projects	Location (In Maryland)
More details coming soon			

Possible Projects in the Division of Cancer Control and Population Sciences (DCCPS)

Investigator	Scholar Level	Currently Available Research Areas and Projects	Location (In Maryland)
Everson, Nicole	All	The National Cancer Institute's (NCI's) Health Communication and Informatics Research Branch advances research on the processes and effects of communication and health information technology across the cancer control continuum. Research priorities include digital health, health literacy, communication inequalities, social media use and health, health-related misinformation, communication surveillance, patient- provider communication, global cancer stigma, public policy support and multilevel communication interventions. Priority content areas that intersect with health communication include cancer health disparities; health behaviors (e.g. tobacco use, diet, physical activity, alcohol use, cannabis); lung cancer screening; environmental justice/climate change and cancer; early onset cancers. We are looking for a fellow to support the branch's research activities in one or more of these areas. Responsibilities may include data management and analysis to support HCIRB's partnership with the NCI's Cancer Information Service (CIS), which provides smoking cessation counseling and evidence-based information to patients, caregivers, healthcare providers, and researchers about all aspects of cancer, including cancer clinical trials, cancer risks, and survivorship. The CIS' rich database includes documentation of each interaction which can be used to understand cancer information needs and inform NCI's research priorities. Fellows may also collaborate with program directors in new and ongoing analyses of the Health Information National Trends Survey (HINTS), a nationally representative survey of the American public's access to and use of cancer- and health- related information, or other federal datasets, as well as collaborate in systematic literature reviews and portfolio analyses. https://cancercontrol.cancer.gov/brp/hcirb	Shady Grove
Han, Paul	All	Two projects are available for interested candidates, involving primary data collection and secondary data analysis. Project 1 is a qualitative sub-study of the HPV-automated visual evaluation (PAVE) study, a large multi-site global health study evaluating a novel cervical screen-triage-treat strategy in low and middle-income countries (LMICs). This qualitative study aims to understand how patients and health professionals participating in the PAVE study perceive the value of risk communication and shared decision making in cervical cancer prevention and screening. The study involves conducting and analyzing data from individual interviews with patients and physicians in 4 countries (Brazil, El Salvador, Nigeria, and Tanzania). Project 2 is a set of online experimental studies aimed at understanding the effects of	Shady Grove

		different strategies for communicating about the cancer risk associated with alcohol consumption. This study uses online surveys of the general public to experimentally test the effectiveness of different messaging strategies; participants are randomly assigned to different messages (e.g., “alcohol causes cancer” vs. “alcohol increases the risk of cancer”) and then complete surveys measuring their responses to these messages. Quantitative data analyses are conducted to compare the effects of different messages. Project 3 is a qualitative sub-study of the Connect for Cancer Prevention Study (CONNECT), a large prospective cohort of 200,000 adults in the United States designed to further investigate the etiology of cancer and its outcomes. This qualitative study aims to understand the extent to which participants perceive environmental risk information generated by the study as valuable, and their preferences for receiving such information. A diverse sample of participants from different geographic regions of the US will be recruited to explore how sociodemographic factors might influence participants’ views. https://staffprofiles.cancer.gov/brp/prgmStaffProfile.do?contactId=1532&name=Paul-Han&bioType=stf	
Klein, William	All	My colleagues and I in the Behavioral Research Program are engaged in several projects that test and apply risk communication science to behavioral risk factors for cancer. In one set of studies, we are applying principles from the literature on risk communication to design effective methods of communicating lung cancer risk to smokers engaged in lung cancer screening. In another, we are exploring how best to communicate the carcinogenic nature of alcohol in public health messages and in warning labels. In a third set of studies, we are assessing how risk perceptions for genetic disease are related to interest in genetic testing, with the ultimate goal of designing better ways to communicate genetic risk. We also have a team focusing on risk communication regarding climate change and cancer risk. Our program also collects national data using the Health Information National Trends Survey (HINTS) to assess knowledge, attitudes, and risk perceptions regarding behavioral risk factors such as tobacco, alcohol, diet, and physical activity, allowing us to assess determinants of health risk behaviors. Fellows have full access to these and other data sets (e.g., the Tobacco Use Supplement to the Current Population Survey) and can also contribute content for future administrations of these surveys. We have a strong mentorship culture, and our fellows (including iCURE fellows) have gone on to many excellent positions in academia, government, and industry. Fellows have many opportunities for publication, conference attendance/presentation, and collaboration. Fellows also have the chance to participate in our collaborations with other NCI research programs such as the Clinical Genetics Branch in DCEG, which conducts research on individuals at high genetic risk (e.g., Li-Fraumeni Syndrome). Moreover, fellows can get involved in workshop and program planning as desired. https://staffprofiles.cancer.gov/brp/prgmStaffHome.do	Shady Grove

Land, Stephanie	All	The Smoking Cessation at Lung Examination (SCALE) Collaboration is an initiative sponsored by the National Cancer Institute (NCI) to conduct research on lung cancer screening and smoking cessation treatment with a specific group: long-term smokers who are screened for lung cancer using low-dose computed tomography (LDCT). The purpose of the SCALE Collaboration is to share data and methods from funded randomized controlled trials to enable cross-project research on smoking cessation interventions in the setting of lung cancer screening. Numerous research ideas are being generated in this group, such as which types of cessation interventions were most effective. To pursue these ideas, NCI scientists are collaborating with the investigators of the SCALE trials, at 8 academic medical institutions in the United States. Our group is a nice environment for fellows, with interesting work and collegial interactions. We have an active mentorship program with many opportunities for networking, training, and other types of career development. We seek to ensure that projects and types of tasks are matched to the interests of the fellow. https://cancercontrol.cancer.gov/brp/tcrb	Shady Grove
Moser, Rick	Post-Baccalaureate, Postdoctoral Candidate	This is an opportunity for someone with interests in behavioral research including health communication, survey and research methods, statistical analysis, and data harmonization. One set of projects would involve joining a team that administers the Health Information National Trends Survey (HINTS), a population-based survey of US adults. This would involve doing data management, running statistical analyses, creating reports based on these analyses, helping to prepare documents to support researchers to use the data, and contributing to publications created by the team, and leading your own analyses, related presentations, and publications. Also, you would be part of a working group with Healthy People 2030 as HINTS supports 5 objectives and you could be part of this trans-HHS initiative. In addition, you would be involved with developing the GEM portal, to promote and disseminate the use of common measures for prospective research to increase data harmonization for merging and comparability. https://hints.cancer.gov/	Shady Grove
Tonorezos, Emily	All	The Office of Cancer Survivorship supports research that both examines and addresses the long and short-term physical, psychological, social, and economic effects of cancer and its treatment among pediatric and adult survivors of cancer and their families. We have a range of research projects in development or in process at any given time, representing a number of opportunities for students or trainees. Our values include scientific integrity, collaboration, creativity, and autonomy. http://survivorship.cancer.gov	Shady Grove

Vanderpool, Robin	All	The National Cancer Institute's (NCI's) contact center, known as NCI's Cancer Information Service (CIS), was established in 1975 as an essential part of NCI's communication infrastructure and information dissemination efforts. For over 40 years, NCI's CIS has been providing compassionate and scientifically based information to patients, their families and friends, health providers, researchers, and the general public about all aspects of cancer including: cancer clinical trials, cancer prevention, risk factors, symptoms, early detection, diagnosis, treatment, and survivorship. CIS also provides tobacco and cessation counseling and information. The CIS documents each interaction across its contact points (i.e., telephone, LiveHelp, email, social media) using an OMB-approved coding schema, resulting in a rich database profiling active information-seekers that can be used to inform NCI's research priorities. As collaborative partners, DCCPS – specifically the Health Communication and Informatics Research Branch (HCRIB) – and the CIS have established an agenda focused on secondary data analyses of CIS contact data for research and programmatic planning purposes; increasing CIS connections throughout NCI Divisions, Offices, and Centers; and disseminating findings through reports, manuscripts, and presentations. We are looking for a fellow to assist with execution of data management protocols, including quarterly data updates from the CIS Contact Center, and ongoing data cleaning and preparation for analytic activities as well as provision of quantitative analytic support to understand cancer information-seeking on topics that address NCI initiatives and research priorities. This project would result in numerous publication and presentation opportunities, therefore, high quality writing and presentation skills are required. The fellowship would be based in DCCPS/HCIRB and the fellow would also work with the CIS program and Westat, a research services contractor. https://cancercontrol.cancer.gov/brp/hcirb; https://www.cancer.gov/contact	Shady Grove

Possible Projects in the Division of Cancer Epidemiology and Genetics (DCEG)

Investigator	Scholar Level	Currently Available Research Areas and Projects	Location (In Maryland)
Cheung, Li	All	I would like to develop methods to accurately estimate the years of life lost due to cancer and the years of life gainable by secondary prevention. Current estimation of the years of life lost are biased as they compare ages of cancer death against either a specific attained age or to actuarial tables estimates of life expectancy, but this approach does not account for differences between those who acquire cancer and the general population. Similarly the years of life-gainable is often estimated as the difference in death age between those diagnosed with localized, distant, and regional stage cancers, but the two populations may not be directly comparable. https://dceg.cancer.gov/about/staff-directory/cheung-li	Shady Grove
Keil, Alexander	All	I conduct research into the epidemiologic and causal inferential methods underlying studies of health effects of exposure mixtures. I have several possible projects at multiple levels: Environmental epidemiology has increasingly taken a mixtures-based approach to estimating health effects of the environment in which many exposures are measured simultaneously. Routinely, analyses are performed on these data using default statistical approaches. Alternatively, methods are available to tailor mixtures' analyses directly to urgent categories of public health questions, such as identifying joint effects of receiving many harmful exposures at once and quantifying whether environmental exposure disparities could be contributing to health disparities. I could greatly use your help in these projects, where you could learn a) how to organize data for epidemiologic analyses using open source statistical software like R or Julia and perform basic data summarization; b) the use of publicly available data to characterize how effectively the exposures we face can be used to estimate effects of independent or joint exposure to multiple chemicals; or c) how to assist with and carry out simulation studies on new methods for estimating health effects of exposure mixtures. Applicants at the post-doctoral level are also welcome to help me brainstorm new ideas on integrating causal inference approaches with exposure mixtures using the wealth of epidemiologic data here in DCEG. Applicants at all levels will be encouraged to help or lead the writing-up of study results with the goal of scientific publication. Existing skills in programming, environmental epidemiology, and causal inference are most welcome, but I am also seeking candidates who are enthusiastic about learning in these areas and have not yet had the chance to do so. https://dceg.cancer.gov/about/staff-directory/keil-alexander	Shady Grove

Lee, Choonsik	Post-Baccalaureate, Graduate Student	The project includes three independent but closely-related radiation dosimetry projects as follows: 1. Internal Dosimetry for Nuclear Medicine Participants will explore techniques for assessing radiation doses in nuclear medicine patients. This includes calculating S values and organ dose coefficients using anatomical models and Monte Carlo radiation transport methods. Emphasis will be placed on radionuclide-specific dose distributions for commonly used radiopharmaceuticals, such as Tc-99m, Ga-68, I-123, and I-131. Mentors will guide participants through the process of estimating patient-specific doses and understanding the impact of factors such as age, organ mass, and radionuclide energy. 2. Radiation Dose Assessment for Environmental Exposure Participants will also focus on environmental dosimetry related to radiation accidents, such as the Chernobyl nuclear power plant disaster. Through this, they will learn to assess radiation exposure in affected populations by analyzing environmental data, contamination levels, and dose reconstruction techniques. The mentoring will cover methodologies for evaluating long-term radiation exposure effects on health and strategies for effective risk communication in such incidents. 3. Radiation Accidents and Emergency Dosimetry This segment will prepare participants for radiation accident scenarios, providing them with the knowledge and skills to perform emergency radiation dose assessments. Case studies of accidents, like Chernobyl, will be used to demonstrate real-world applications of internal and external dosimetry techniques. Participants will gain experience in using dosimetry tools and models to support emergency response efforts, including assessing exposure risks and determining appropriate protective actions. https://dceg.cancer.gov/about/staff-directory/lee-choonsik	Shady Grove
Purdue, Mark	All	I am seeking an iCURE fellow interested in gaining experience conducting classical and molecular epidemiologic research involving investigations of (1) cancer associations with occupational and environmental exposures in active-duty military personnel, and/or (2) differences by race and ethnicity in kidney cancer etiology. A major part of my research involves investigating cancer risks associated with exposures to per- and polyfluoroalkyl substances (PFAS), highly persistent chemicals that have become widespread water contaminants due to environmental releases from military bases and civilian airports using PFAS-containing firefighting	Shady Grove

		foams, among other sources. In particular, I have been conducting studies investigating testicular cancer risk among active-duty military personnel in relation to serum PFAS concentrations as well as military occupational histories. There are opportunities to analyze data from these studies as well as a planned cohort study of military firefighters. I also conduct epidemiologic studies to better understand factors underlying the disparity in kidney cancer incidence and survival between Black and White Americans. This work includes analyses of questionnaire data on known and suspected risk factors, investigations of genetic susceptibility through genome-wide association studies, and racial comparisons of tumors molecularly characterized using sequencing, gene expression profiling and genome-wide methylation analysis. There will also be opportunities to help develop new research ideas to pursue. https://dceg.cancer.gov/about/staff-directory/purdue-mark	
Vo, Jacqueline	All	1) Project 1 examines health disparities in cancer incidence, mortality, or outcomes by race and ethnicity or socioeconomic status. There is a special emphasis on examining health disparities for Asian American vs Native Hawaiian and other Pacific Islander populations, who represent distinct and different racial groups in the U.S. Research will focus on conducting analyses using SEER data, creating graphs, and drafting manuscript. There will be opportunities for first author or co-authorship. 2) Project 2 includes joining a dynamic research team for the NCI-Kaiser Permanente Breast Cancer Survivors Cohort. Research focuses on treatment-related second cancers, cardiovascular disease, and mortality, among a racially diverse breast cancer survivor cohort. Research opportunities include conducting a scoping literature review on health disparities in cardiovascular diseaese among breast cancer survivors, conducting descriptive analyses examining treatment patterns by race and ethnicity, and conducting survival analyses examining the risk of treatment-related cardiovascular disease by race and ethnicity. Future expansions include geospatial linkages to county- and census-tract level outcomes, and opportunities include leading analyses, drafting conference abstracts, and leading or co-authoring manuscripts. https://dceg.cancer.gov/research/what-we-study/contralateral-breast-cancer; https://dceg.cancer.gov/about/staff-directory/vo-jacqueline	Shady Grove
Vogtmann, Emily	All	Microbes, including bacteria and fungi, are essential for numerous physiological processes and likely play multiple roles in health and disease. However, the relationship between the microbiome and cancer remains understudied and previous studies have often not included diverse participants. My ongoing research focuses on 1) understanding the relationship between the oral and fecal microbiome with	Shady Grove

		cancer risk; and 2) methodologic studies of the microbiome to evaluate optimal methods to collect, store, and process oral and fecal samples for microbiome analyses. Data include newly generated 16S rRNA gene data and shotgun metagenomic sequencing data from samples analyzed in DCEG and large, existing datasets of the microbiome and microbiome-related exposures with various outcomes. In addition, I am planning qualitative studies, including focus groups, to evaluate how to recruit more diverse individuals to microbiome studies. https://dceg.cancer.gov/about/staff-directory/vogtmann-emily	
Zhang, Tongwu	All	Our research group specializes in investigating cancer genetics and genomics using advanced computational methods and diverse sequencing technologies. Our primary focus is on understanding tumor heterogeneity and evolution in the context of specific genetic backgrounds and causative factors. We delve deep into the intricacies of tumor heterogeneity and evolution, exploring how they vary across diverse populations, exposures, and genetic interactions. Our projects also delve into cutting-edge cancer genomic features, including mutational signatures, retrotransposable elements, and extrachromosomal DNA (ecDNA). To achieve our goals, we employ intensive computational resources and diverse cancer genomic approaches. We utilize pan-cancer genomic datasets from prominent international studies such as TCGA, PCAWG, ICGC, Genomics England, Hartwig Medical Foundation, ALCHEMIST, and AACR GENIE, as well as internal cancer genomic datasets from underrepresented populations within DCEG. In addition to our research endeavors, we are committed to developing innovative computational methods, interactive visualization tools, and data portals. These resources facilitate a deeper understanding of complex cancer genomic features, enabling researchers to explore and analyze data comprehensively. As a member of our team, you will have the opportunity to lead or co-lead international collaborative projects focused on cancer genomics analyses and studies. You will receive mentorship to acquire new methods and approaches for analyzing large-scale and high-dimensional genomic data. Moreover, you will have the chance to develop new projects and collaborate closely with experts in diverse fields, including bioinformatics, data science, biostatistics, epidemiology, cancer genomics, and genetics. This collaborative environment extends beyond NIH, allowing you to work with experts outside the organization. https://dceg.cancer.gov/about/staff-directory/zhang-tongwu	Shady Grove