

FRCT Mentors and Research Descriptions

Mentors are sorted alphabetically by Department, and then last name.

Name (Department)	E-mail	Research Description
Cheer, Joseph F (Anatomy & Neurobiology)	jcheer@som.umaryland.edu	That person would work with a transgenic animal model of Huntington's disease using advanced neuroscience techniques, such as ensemble electrophysiology, voltammetry and optogenetics.
Lindberg, Iris (Anatomy & Neurobiology)	ilindberg@som.umaryland.edu	We are researching cytoprotective mechanisms in Parkinson's disease that are related to a new growth-factor like molecule known as proSAAS. Overexpression of this protein is known to block the appearance of motor symptoms in several models of Parkinson's disease. We have recently had a breakthrough in identifying specific intracellular signaling pathways that are impacted by proSAAS expression. Students will assist in quantifying proSAAS-mediated cytoprotection using iPSC cell models that express varying amounts of proSAAS.
Lobo, Mary Kay (Anatomy & Neurobiology)	mklobo@som.umaryland.edu	Our lab studies how the brain's reward circuits are rewired by addictive drugs and stress across the lifespan, with a focus on molecular mechanisms in neuronal and microglia populations in reward brain regions. We use a combination of preclinical models to model clinical conditions and translational work with human stem cell-derived brain cell models and clinical samples. Much of our translational work focuses on drug exposure in utero and the brain placenta axis collaborating with clinicians through the Substance Use in Pregnancy Center and the Kahlert Institute for Addiction Medicine. Students have opportunities to work on preclinical and translational studies.
Puche, Adam C (Anatomy & Neurobiology)	apuche@som.umaryland.edu	Sciatic Nerve Branching: We have a project examining a potential interdependency of age on the branching pattern of the sciatic nerve, with implications for physical therapy and anesthesiology. This project involves review of patient MRI images and positional measurements of the sciatic nerve.
Grewal, Ashanpreet (Anesthesiology)	agrewal@som.umaryland.edu	Please email for more information.
Henderson, Reney A (Anesthesiology)	rhenderson@som.umaryland.edu	We will be look at different coagulation profiles in regards to cardiac surgery and how to best achieve hemostasis. We will also look at the impact of anemia on cardiac surgery and AKI risk
Lipinski, Marta (Anesthesiology)	mlipinski@som.umaryland.edu	My lab investigates the mechanisms of neurodegeneration and neuroinflammation following traumatic brain injury (TBI) using mice as a model. We are interested in both acute and chronic TBI mechanisms as well as mechanisms linking history of TBI to development of neurodegenerative diseases later in life. In particular, we are focusing on the contribution of the autophagy-lysosomal pathway to neurodegeneration and neuroinflammation and the connection between perturbation of lipid metabolism, lysosomal function and inflammation after TBI.
Mondal, Samhati (Anesthesiology)	smondal@som.umaryland.edu	Please email for more information.
Triplett, Noah (Behavioral Health)	ntrip7@umd.edu	My work explores the intersection between socioecological factors and behavioral health outcomes (mental health and substance use). My current work spans rural Maryland and Cape Town, South Africa. I employ implementation science methods to understand how to increase access to effective interventions for behavioral health conditions.
Lin, Jiayuh (Biochemistry & Molecular Biology)	JLin@som.umaryland.edu	Our lab is working on IL-6, CDK4/6, and PARP pathways in cancer. We are developing novel drug candidates and drug combination to target these pathways for potential therapeutic approach in cancer.

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Ray, Krishanu (Biochemistry & Molecular Biology)	kray@som.umaryland.edu	<p>Single molecule studies of the HIV-1 envelope and SARS-CoV-2 Spike protein.</p> <p>Research in this area is focused on the biophysical properties of HIV-1 and SARS-CoV-2 Spike proteins. Fluorescence correlation spectroscopy (FCS) and single molecule detection (SMD) are used as novel tools to probe the nature of HIV-1 envelope interactions with cell surface receptors and/or anti-envelope antibodies at the molecular level to understand the initial step of HIV infection. Current research also includes the study involving interaction between SARS-CoV-2 virions and receptors and/or antibodies. A quantitative, intrinsic, label-free, and minimally invasive method based on two-photon fluorescence lifetime (FLT) imaging microscopy (2p-FLIM) has been developed in the lab towards imaging NADH metabolism of virally and bacterially infected cells and tissue sections.</p>
Wilson, Gerald (Biochemistry & Molecular Biology)	gwilson@som.umaryland.edu	<p>Our key research interests are the cellular mechanisms that regulate the production of many important gene products, including oncoproteins, inflammatory mediators, and lipoprotein receptors. In particular, we focus on protein factors that regulate cytoplasmic mRNA turnover rates, and the signaling systems that may transiently modulate the activity of these factors. Experimental approaches vary from cell and molecular biology (cultured cell systems, transfection, RNA interference) to biochemical (gel mobility shift, protein-protein and protein-RNA cross-linking) and biophysical systems (fluorescence anisotropy, resonance energy transfer). Some current foci of interest include:</p> <ul style="list-style-type: none"> • Trans-acting factors that regulate decay of oncoprotein and inflammatory mediator mRNAs • The role of post-transcriptional gene regulatory circuits in tumor development • mRNA stability as a novel mechanism to enhance hepatic LDL receptor expression
Lee, Cameron (Dentistry)	CLee4@umaryland.edu	My research focuses on health services and health policy in oral and maxillofacial surgery, including healthcare utilization, access, costs, and surgical care delivery. Much of this work uses large national administrative datasets and institutional clinical data to study patterns and outcomes of surgical care. I also conduct clinical outcomes research in head and neck oncology and reconstructive surgery, maxillofacial trauma, and other areas of oral and maxillofacial surgery.
Wilken, Nicholas (Dentistry)	nwilken1@umaryland.edu	My research focus pertains to Oral and Maxillofacial surgery. Potential topics include projects that pertain to facial trauma, benign lesions of the jaws, and orthognathic surgery.
Chang, Linda (Diagnostic Radiology & Nuclear Medicine)	lchang@som.umaryland.edu	Dr. Chang has multiple clinical and translational neuroimaging research projects, as well as existing datasets, that are suitable for medical student participations. She has an ongoing project to us a computerized training program and aerobic exercise to improved brain function in patients with mild cognitive impairment (prodrome for Alzheimer's). She is also collecting data for a large multi-site comprehensive longitudinal study (with cognitive and MRI data in >10K individuals) to evaluate adolescent brain cognitive development (ABCD). Lastly, she is initiating a clinical study that use MR-guided focused ultrasound to enhance the delivery of an anti-amyloid drug to the brain to treat Alzheimer's disease.
Jeudy, Jean (Diagnostic Radiology & Nuclear Medicine)	JJEUDY@som.umaryland.edu	Several projects are available in the cardiothoracic section in the department of radiology. We have a wide range of projects including hypothesis driven retrospective studies as well as smaller review studies. Artificial intelligence studies are also possible.

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Gingold, Daniel B. (Emergency Medicine)	DGingold@som.umaryland.edu	Current and upcoming research topics include emergency department boarding, ECG diagnosis of OMI, pulmonary embolism, pragmatic randomized trials
Salerno Rubeling, Alexis (Emergency Medicine)	alexis.salerno@som.umaryland.edu	I perform research in the emergency department on the use of point-of-care application in the care of patients.
Sward, Douglas (Emergency Medicine)	dsward@som.umaryland.edu	Interested in mentoring and facilitating student research efforts in wilderness, dive medicine, and hyperbaric medicine. This includes assisting in finding field research opportunities in North America.
Teeter, William (Emergency Medicine)	william.teeter@som.umaryland.edu	Please email for more information.
Gruber-Baldini, Ann L. (Epidemiology & PH)	abaldin@epi.umaryland.edu	I have three research areas: 1) Patient reported outcomes and the impact of cognitive functioning: this study will validate the PROMIS Profile measures in older adults and to identify the threshold where cognitive impairment invalidates these responses. This is a mixed-methods study including qualitative and quantitative approaches. 2) Hip fracture and dementia: I have existing longitudinal datasets on hip fracture and cognitive recovery; any interested student must have experience with data analyses. 3) HIV and aging. I have been collaborating with clinicians at the Midtown THRIVE center on research with persons aging with HIV (aged 50 and older). I have a pilot study on a behavioral intervention to decrease loneliness and increase meaningful activities, and also to address physical activity and nutrition concerns.
Khanna, Niharika (Family & Community Medicine)	nkhanna@som.umaryland.edu	I am the Principal Investigator of the Maryland Rural Healthcare Infrastructure Initiative; and the Director of the Maryland Tobacco Control Resource Center. I work on developing a rural community based workforce, and tobacco cessation using e-referrals to the Maryland Quitline, COVID and Tobacco, Electronic cigarettes/vaping associated with EVALI, COVID-19 vaccination in the community, Long COVID, and using the Area Deprivation Index to identify COVID hotspots
Ntiri, Shana O. (Family & Community Medicine)	sntiri@som.umaryland.edu	Cancer screening disparities
Pierce, Brian (IBBR)	pierce@umd.edu	My laboratory's research focuses on computational structural biology, specifically modeling and design of immune recognition, including T cell receptors, antibodies, and vaccines. We utilize and develop advanced computational methods, including protein-protein docking and protein interface design, as well as data mining of characterized antibody-antigen and TCR-pMHC complexes available in the Protein Data Bank. Areas of particular interest are the design of high affinity biotherapeutics and broadly neutralizing vaccines that prevent viral escape.
Harfouch, Omar (Medicine)	oharfouch@ihv.umaryland.edu	- Qualitative research on facilitators and barriers to HPV vaccination among transgender women. - Can work with students on analyses on anal HPV infection, PrEP/ART use, STI rates, gender-affirming care among transgender populations.
Mathur, Poonam (Medicine)	pmathur@ihv.umaryland.edu	Observational study assessing HIV and frailty at the Baltimore VAMC
McCann, Robert S. (Medicine)	rmccann@som.umaryland.edu	Dr. McCann conducts research on vector borne diseases, with current projects focused on mosquito genomics and the epidemiology/ecology of malaria. Genomics-focused projects will provide students with training in population genetics, bioinformatics, and genomic data analysis. Depending on the student's interests and experience,

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		opportunities may include advanced population genomic analyses related to: (1) mosquito population structure, demographic history, and patterns of gene flow; or (2) evolutionary genetics of insecticide resistance in malaria vectors. Epidemiology/ecology-focused projects will provide students with experience integrating epidemiological and environmental data sets and conducting statistical analyses using R. Potential topics include: (1) the impact of climate on malaria vectors in Malawi; and (2) evaluating the effectiveness of insecticide-treated bed nets for malaria prevention.
Narayanan, Shivakumar (Medicine)	snarayanan@ihv.umaryland.edu	HIV home community based service evaluation for outcomes, implementation of statin pathway in HIV clinic, HIV prevention using contingency management in PWUD (subprojects to look at HIV risk improvement in subgroups) also have a couple of industry sponsored HIV interventional studies- not sure if these are allowed for MS participation.
Outeda Garcia, Patricia (Medicine)	pgarcia@som.umaryland.edu	Autosomal dominant polycystic kidney disease is an important cause of end-stage renal disease, for which there is no proven therapy. Mutations in PKD1 and PKD2 (the genes encoding polycystin-1 and polycystin-2) are the cause of this disease. The disease begins in utero and is slowly progressive. We know that inactivation of Pkd1 in mice before postnatal day 13 results in severely cystic kidneys within 3 weeks, whereas inactivation at day 14 and later results in cysts only after 5 months. This critical developmental switch has not been defined and/or characterized for Pkd2 inactivation. Our hypothesis is that the developmental switch in Pkd2 is similar to the one observed and described for Pkd1. To test our hypothesis we will inactivate Pkd2 expression in mice at different time points, from postnatal day P12 to postnatal day P15 and we will evaluate cyst development and cyst progression by immunohistochemistry and H&E staining. We will perform immunofluorescence at different time points and using different nephron segment markers to evaluate the origin of cysts. We will also test if proliferation of renal epithelial cells is a major driver of cystogenesis after Pkd2 inactivation. We will perform RT-PCR and western blot targeting specific genes involved in cyst development and cyst progression at different time points.
Finn, Alope V (Medicine/Cardiology)	afinn@medicine.umaryland.edu	I have an active research program examining the mechanisms of vascular disease including genetics and pathologic analysis as well as using other techniques such as single cell RNA seq etc. We have a large biobank of tissues that sources as source material for many of our studies.
McCoy, Rozalina (Medicine/EDN)	rozalina.mccoy@som.umaryland.edu	Please email for more information.
Munir, Kashif (Medicine/EDN)	kmunir@medicine.umaryland.edu	clinical diabetes and thyroid research
McCarthy, Paul J (Medicine/General Internal Medicine)	pmccarthy1@um.edu	In neurocritical care we have a physician research director. We additionally have 2 research associates and neurocritical care fellows involved in project. Most projects are clinical in nature and look at outcome measures.
Ryan, Alice (Medicine/Gerontology)	aryan@som.umaryland.edu	The main focus of Dr. Ryan's research is the study of the role of obesity, diabetes, muscle atrophy, stroke, and HIV and the mechanisms underlying their clinical, metabolic, and functional abnormalities. Dr. Ryan conducts exercise and weight loss clinical trials and launches novel investigations into underlying mechanisms by which aerobic and resistive exercise training improve muscle and adipose tissue metabolism and function to improve cardiovascular health and reduce disability in aging.
Tkaczuk, Katherine (Medicine/Hem-Onc)	ktkaczuk@umm.edu	I am interested in clinical drug development in breast cancer and solid tumor malignancies. This research focus includes clinical exposure to breast cancer patients with stage 0-4 disease in our multidisciplinary breast cancer clinics

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		<p>of UMGCC.</p> <ol style="list-style-type: none"> 1. Create and analyze Breast Cancer Database in Redcap, the analysis would require collaborations with UMGCCC medical oncologists and statisticians, the specific BC outcome analyses will be defined together with the student. The medical student would be responsible for data collection and analysis. 2. We are also interested in prognostic and predictive markers of response to anticancer therapies, we have been involved and continue research with the glycoprotein 88; (GP-88), and we also have a protocol (Phase 1A/1B study) with a novel humanized monoclonal antibody to GP-88 for breast cancer and lung cancer patients.
Alexander, Carla (Medicine/ID)	calexand@som.umar yland.edu	Educational intervention for medical residents
Eke, Uzoamaka (Medicine/ID)	ueke@ihv.umaryl and.edu	Please email for more information.
Sajadi, Mohammad M. (Medicine/ID)	msajadi@ihv.uma ryland.edu	My lab is involved with humoral immunity and antibodies in the setting of various infections, including HIV-1 and SARS-CoV-2. We are interested in broadly neutralizing antibodies, and how the human body responds to HIV-1 gp120. The research is translational, and typically bench-based. We have several current grants related to the above.
Qian, Feng (Medicine/Nephrology)	fqian@som.umaryl and.edu	Research in my laboratory examines the molecular mechanisms of processing and trafficking of PKD proteins (polycystin-1, polycystin-2, and polyductin) and their signaling pathways that regulate kidney development, ion channel function and metabolism. We seek to elucidate PKD signaling pathways that are altered when the respective PKD genes are mutated, using a combination of biochemical, biophysical, cell biological methods and animal models. We focus on role of the cis-autoproteolytic cleavage of polycystin-1 at the GPS domain for its biological function including ion channel activity. This fundamental property of polycystin-1 is absolutely essential for proper structure and function of kidney and liver. Pkd1 knock-in mouse with defective cleavage at GPS develops severe cystic dilation at the distal portion of the nephron at the postnatal period.
Seliger, Stephen L (Medicine/Nephrology)	sseliger@medicin e.umaryland.edu	I am Co-Director of the Maryland Polycystic Kidney Disease Research Resource Center Clinical and Translational Core (PI: Terry Watnick). We have a large prospective observational cohort study to characterize the range of renal and cardiovascular phenotypes of adults with Polycystic Kidney Disease (PKD), and a linked biorepository for the identification of novel biomarkers which predict PKD complications and disease progression.
Hines, Stella (Medicine/Pulmonary)	shines@medicine .umaryland.edu	Please add to my department "Occupational/Environmental Medicine and Pulmonary". Please update my project description to: I use clinical, epidemiological, and exposure-assessment methods to identify and reduce the respiratory harms of occupational and environmental exposures, advancing prevention strategies that protect workers, improve community health, and promote healthier lives. I have opportunities for medical student involvement in clinical research evaluating respiratory health outcomes in post 9/11 Veterans exposed to military-relevant hazards, such as burn pit exhaust, sand, dust, fuels and vehicular exhaust. There would be opportunities to learn about cardiopulmonary physiologic testing (PFTs, exercise tests), and exposure assessment strategies.
Coughlan, Lynda (Microbiology & Immunology)	lcoughlan@som.u maryland.edu	Our research Program involves both clinical research on vascular surgery patients and outcomes as well as device development studies. Medical students have been successful and contributing to this research in many different

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		ways and we look forward to students that are interested in vascular devices and surgery to get involved with our program.
Feldman, Ricardo A. (Microbiology & Immunology)	rfeldman@umaryland.edu	Our laboratory models lipid storage and neurodegenerative disorders including Parkinson's disease using patient-derived induced pluripotent stem cells (iPSC). iPSC are differentiated to the affected cell types and 3-dimensional organoids that mimic brain and other tissues for phenotypic characterization, drug discovery, and regenerative medicine. A description of our research program can be found at: http://medschool.umaryland.edu/FACULTYRESEARCHPROFILE/viewprofile.aspx?id=276 A list of our publications can be found at: https://www.ncbi.nlm.nih.gov/myncbi/ricardo.feldman.1/bibliography/public/
Ravel, Jacques (Microbiology & Immunology)	jrael@som.umaryland.edu	The Ravel laboratory investigates the vaginal microbiome and its role in women's health, with a focus on understanding the ecological and functional interactions among microbial communities, the host, and pathogens. The laboratory integrates longitudinal clinical studies, microbial genomics, metagenomics, metatranscriptomics, metabolomics, and computational approaches to define mechanisms underlying bacterial vaginosis, sexually transmitted infections, and adverse reproductive and pregnancy outcomes. Mechanistic studies using advanced organotypic and microphysiological models complement these population-based approaches to establish causal relationships between the microbiome and host biology. A major emphasis of the laboratory is translating these discoveries into new strategies to improve women's health, particularly through the development and evaluation of live biotherapeutic products and other microbiome-based interventions designed to restore and maintain an optimal vaginal microbiome.
Singh, Nevil (Microbiology & Immunology)	nsingh@som.umaryland.edu	We are a basic science laboratory using mouse model systems to examine the fundamental mechanisms regulating T cell memory, Vaccine efficacy, Tumor immunity and Immunological tolerance . We primarily use transgenic and knockout mice, cell culture systems, Flow-Cytometry, retroviral gene manipulation as well as a variety of standard molecular/biochemical methods. See http://nevilab.org for more details about the lab. We would be a good match for students interested in unraveling biochemical and molecular puzzles in cell biology - and in learning Immunology along the way
Benavides, David (Neurology)	dbenavides@som.umaryland.edu	We investigate the interaction between nervous and immune systems, with particular interest in neurological diseases like multiple sclerosis and autoimmune encephalitis. Model systems include neuronal culture, acute brain slices, and rodent animal models of neurological diseases. Techniques include molecular biology, tissue culture, biochemistry, animal behavior, and animal surgical techniques.
Harrison, Daniel (Neurology)	dharrison@som.umaryland.edu	My lab utilizes novel neuroimaging methods to visualize aspects of multiple sclerosis not well imaged by standard techniques. We have two possible data sources for students to be involved in projects. The first involves our 7 Tesla MRI study, in which patients with MS obtain high resolution MRI images of the brain, along with clinical measures and biosamples. The other is our adaptive optics optical coherence tomography (AO-OCT) study, in which participants with MS undergo cellular-level resolution imaging of the retina.
Motta, Melissa (Neurology)	mmotta@umm.edu	COMA-F: A multicenter NIH-funded study culturally tailoring and evaluating a family-centered intervention to reduce psychological distress and improve coping among Spanish-speaking Hispanic caregivers of patients with severe acute brain injury. PRO-COM: A prospective study examining prognostic communication between clinicians and families

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		after severe acute brain injury, with a focus on communication quality, prognostic understanding, and clinician-family concordance. Neurorecovery/Post-ICU Care: Research evaluating long-term outcomes after severe acute brain injury and the impact of a longitudinal Neurorecovery Clinic model on functional, cognitive, psychological, and caregiver outcomes, healthcare utilization, and return to meaningful life roles. Medical Education: Scholarship focused on bedside neurologic education, including neurologic examination training, structured observation and feedback, resident-as-teacher development, and competency-based clinical assessment.
Parra-Rivas, Leonardo (Neurology)	lparra-rivas@som.umaryland.edu	Our laboratory studies the molecular mechanisms that regulate synaptic function and neuronal health, and how their disruption contributes to neurodegenerative diseases, particularly Parkinson's and Alzheimer's disease. We investigate synaptic vesicle cycling, intracellular transport, protein homeostasis, molecular chaperones, and lysosomal/autophagy pathways, with the goal of identifying early mechanisms of synaptic dysfunction and developing new therapeutic strategies. Students may work with mouse primary neurons, human iPSC-derived neurons, and mouse models and gain experience with CRISPR gene editing, viral vectors, advanced microscopy, electrophysiology, and biochemical and proteomic approaches.
Anastasiadis, Pavlos (Neurosurgery)	PAnast@som.umaryland.edu	Focused ultrasound-mediated immunomodulation of solid tumors This project will investigate how focused ultrasound, including mild hyperthermia, alters the tumor immune microenvironment and whether these changes can improve the activity of immunotherapies such as CAR-T cells and checkpoint inhibitors.
Chryssikos, Timothy (Neurosurgery)	TChryssikos@som.umaryland.edu	Please email for more information.
Jia, Xiaofeng (Neurosurgery)	XJia@som.umaryland.edu	1. Brain Recovery and Neuroprotection after Cardiac Arrest This project aims to develop and optimize novel stem cell and extracellular vesicle (EV) therapies, further enhanced through metabolic glycoengineering, to improve neural stem cell interactions in vitro and neurological outcomes following cardiac arrest. We will track the fate of transplanted neural stem cells and investigate underlying mechanisms associated with enhanced cell survival. In parallel, we are developing novel translational tools to uncover the mechanisms of brain injury after cardiac arrest. 2. Peripheral Nerve Injury and regeneration This project focuses on enhancing adipose stem cell adhesion and differentiation in vitro through surface modification, and improving nerve regeneration following peripheral nerve injury using sugar-analog-treated adipose stem cells. We will also investigate the therapeutic effects of stem cell-derived extracellular vesicles in animal models of peripheral nerve crush injury and nerve defect repair.
Junseok, Son (OB-GYN)	junseok.son@som.umaryland.edu	Please email for more information.
Lee, Jessica (OB-GYN)	jklee@som.umaryland.edu	I do research involving abortion and contraception but am interested in helping students who are interested in any project involving reproductive health.
Mark, Katrina (OB-GYN)	kmark@som.umaryland.edu	Substance use in pregnancy.
Roque, Dana M. (OB-GYN)	droque@som.umaryland.edu	My research focuses upon advancing the understanding of gynecologic tumor biology through - elucidation of chemoresistance mechanisms, including the role of class III beta-tubulin and cytoskeletal prosurvival/metastatic pathways

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		<p>- development of novel chemotherapeutic agents</p> <p>- modulation of inflammatory pathways to augment chemotherapeutic efficacy</p> <p>The ultimate goal of such inquiries is to improve outcomes for patients diagnosed with gynecologic malignancy.</p>
Townsel, Courtney (OB-GYN)	ctownsel@som.umaryland.edu	Please email for more information.
Alexander, Janet (Ophthalmology & Visual Sciences)	jalexander@som.umaryland.edu	My clinical research program focuses on imaging tools to enhance patient outcomes. I specialize in pediatric ophthalmology and my primary goals are to understand why infants develop glaucoma after cataract surgery, and how retinal blood flow can predict retinal detachment risk in premature infants. My research also closely examines social determinants of health and how these influence the above mentioned outcomes. I also have an interest in contributing to the future workforce of physician scientists through my mentorship and helping medical students understand their role in the scientific process, skills that I hope broadly apply in any chosen future career.
Saeedi, Osamah (Ophthalmology & Visual Sciences)	osaeedi@som.umaryland.edu	The focus of my research is on ocular imaging and using imaging biomarkers for ocular and systemic disease. I have multiple ongoing research projects for which I could mentor a student. I have mentored numerous students in the past several years, many of which have gotten their own grants from external organizations, presented their work at international conferences, and authored peer-reviewed manuscripts. Glaucoma is the leading cause of irreversible blindness worldwide and the focus of my research. 1) Ocular blood flow in glaucoma patients - This project focuses on determining blood flow in the optic nerve head at the capillary blood flow level in glaucoma patients and controls using novel techniques in ocular angiography. 2) Adaptive Optics Transcellular Imaging - Adaptive Optics is a new technology that allows for the visualization of individual cells in the layers of the retina. This project focuses on imaging interpretation of cellular level data from both glaucoma patients and controls. 3) OCT Angiography - OCT Angiography is a new technique that allows for the real-time and rapid acquisition of microvascular maps of the retina. This work involves interpretation of OCT Angiography images in controls, patients with glaucoma, and patients with systemic and psychiatric disease. 4) Prevalence of glaucoma in patients with severe mental illness: This project involves a chart review of patients with comorbid glaucoma and severe mental illness.
Mostoufi, Behzad (Oral & Maxillofacial Surgery)	bmostoufi@umaryland.edu	<p>I'm always interested in new ideas and to work on research projects with residents and students. Sample of topics that we have worked on: Oral mycosis fungoides; Central xanthoma of the mandible (very rare!); Role of pre-surgical INR in dental patients with liver diseases; Use of Dynamic 3D navigation system in maxillofacial surgery. We also wrote a paper on COVID-19 when it all started!</p> <p>I look forward to working with you on your next research project. E-mail is the best way to contact me.</p>
Abzug, Joshua (Orthopaedics)	jabzug@som.umaryland.edu	My team and I focus on pediatric orthopaedic conditions and trying to improve the lives of children. We conduct numerous projects simultaneously, quite often dealing with fractures, but lots of other topics as well. Our goal is to have a student complete their data collection over the summer and be prepared to write a manuscript for presentation/publication.
Gilotra, Mohit (Orthopaedics)	mgilotra@umom.umd.edu	I conduct basic science, translational and clinical research as a clinician-surgeon-scientist for the Orthopaedics department. My interests are in shoulder and elbow surgery. Current summary: Basic Science 1. Animal models of

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		rotator cuff tear. 2. Implant related infection... Translational 3. Sling compliance after surgery 4. Preventing surgical site infection... Clinical 5. Treatments of massive cuff tear 6. Optimizing tension for reverse shoulder replacement
Meredith, Sean (Orthopaedics)	smeredith@som.umaryland.edu	Orthopaedic sports medicine clinical outcomes research. Hip, knee, and shoulder surgery.
Karri, Jay (Orthopedic Surgery)	jkarri@som.umaryland.edu	Database studies exploring various aspects of spine and other musculoskeletal pathologies and their intersection with pain management.
Aktay, Atiye (Pediatrics)	AAktay@som.umaryland.edu	Biosimilar infusion experience in pediatric IBD patients: adverse reactions and drug levels Looking in the rise of Cannabinoid hyperemesis syndrome since legalization
Alzarka, Bakri (Pediatrics)	balzarka@som.umaryland.edu	Please email for more information.
Berry, Andrea A. (Pediatrics)	aberry@som.umaryland.edu	Dr. Berry studies the humoral immune response to malaria following natural infection and malaria vaccination. She uses protein and peptide microarrays to simultaneously profile the antibody reactivity to hundreds to thousands of malaria proteins and peptides. Her goal is to identify signatures of antibody responses that are associated with protection from malaria illness in order to inform the design of next generation malaria vaccines.
Carter, Rebecca (Pediatrics)	rebecca.carter@som.umaryland.edu	Opportunities for development of research projects related to study of Adverse Childhood Experiences or Social Justice curriculum development, or with development of pediatric community outreach and engagement.
Chaves, Alicia (Pediatrics)	achaves@som.umaryland.edu	Quality improvement in pediatric cardiology and echocardiography. Healthcare disparities in pediatric cardiology.
Cherukumilli, Sumanth (Pediatrics)	SCherukumilli@som.umaryland.edu	Please email for more information.
Civin, Curt I (Pediatrics)	ccivin@som.umaryland.edu	Curt I. Civin, MD; Philip A. Zaffere Distinguished Professor in Regenerative Medicine; Professor of Pediatrics and Pharmacology & Physiology; Director, Center for Stem Cell Biology & Regenerative Medicine; Scientist, UM Greenebaum Comprehensive Cancer Center. My individual research career has focused on hematopoietic stem and progenitor cell biology, leukemia, hematopoietic cell transplantation, and the translation of laboratory discoveries into improved cancer therapies. My breakthrough discovery of the CD34 lympho-hematopoietic stem cell antigen and monoclonal antibody accelerated basic research in stem cell and leukemia biology and improved stem cell transplantation for thousands of patients. Thus, my discovery of the CD34 hematopoietic stem/progenitor cell antigen and development of CD34-directed technologies helped establish a foundation for modern stem cell biology, leukemia research, and hematopoietic transplantation. I have subsequently led multidisciplinary studies defining normal and malignant hematopoiesis, leukemia biology, stem cell function, therapeutic vulnerabilities, and emerging technologies for hematologic malignancies. As an example of a bench-lab summer research project for an FRCT Student, the FRCT student would be offered the opportunity to help knock out and/or overexpress a gene in AML cells, using Nobel Prize-winning CRISPR/Cas9 technology, and to learn if this gene participates in the mechanism of artemisinin-mediated leukemia cell death.
Greene, Carol (Pediatrics)	cgreene@peds.umaryland.edu	Newborn screening; quality of genetic testing; access to genetic services; education/training in genetics.

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Hong, Jennifer (Pediatrics)	jennifer.hong@som.umaryland.edu	I have a clinical interest in treatment outcomes in pediatric patients with eosinophilic esophagitis. I have a multidisciplinary eosinophilic esophagitis clinic with patients entered into a registry which can be leveraged for clinical research projects. I also have research interest in general gastroenterology topics including endoscopy, IBD research, case reports and clinical quality improvements. I am also open to assisting in development of original research ideas.
Hussey-Gardner, Brenda (Pediatrics)	bhussey@som.umaryland.edu	I am a Professor of Pediatrics in the Division of Neonatology. My research focuses on improving outcomes for premature and high-risk infants through developmental care, early intervention, parent education, and family-centered programs. My work spans developmental screening, neurodevelopmental follow-up, parent-infant interaction, early language and literacy promotion, health equity, and qualitative research with families and healthcare providers. I have developed and evaluated innovative programs including Maryland's Premature Infant and Developmental Enrichment (PRIDE) program and the Goslings NICU literacy initiative, and have extensive experience mentoring medical students on clinical, quality improvement, program evaluation, qualitative, and mixed-methods research projects. Students interested in neonatology, developmental pediatrics, child development, implementation science, or family-centered care will find opportunities to participate in meaningful research with direct clinical impact.
Kader, Howard (Pediatrics)	hkader@som.umaryland.edu	Several possible retrospective studies in IBD, Eosinophilic Esophagitis and Celiac Disease.
Macatangay, Regina (Pediatrics)	rmacatangay@som.umaryland.edu	I conduct clinical research in pediatric hematology (sickle cell) and oncology (Pharmacology) and medical education research within the School of Medicine. Research is longitudinal over 2-3 years (not a summer project) Must be up to date with UMB required CITI training
Medina de Jesus, Alexandre E. (Pediatrics)	amedinadejesus@som.umaryland.edu	I study the effects of external insults on brain development, While most of our projects are done in animal models we have projects that will be done in the pediatric population (In collaboration with Dr. Dina Metwally and Dr. Rao Gulapalli. Some projects available: 1- To test whether babies that were born premature (<1500g) will have poor performance in behavioral tests that assess visual-tactile integration when tested at term-equivalent and compared to controls 2- To test whether caffeine can ameliorate neuronal plasticity deficits in a mouse model of FASD.
Mezghanni, Rosangela (Pediatrics)	rmezghan@medicine.umaryland.edu	Our research focuses on translational immunology, with particular emphasis on understanding the early cellular and molecular mechanisms that shape sustained immune responses to pathogens and vaccines. We investigate both conventional and innate-like T-cell responses, examining cellular activation, expansion, functional responses, and epigenetic remodeling following infection or vaccination. PhD students joining our group will have opportunities to develop expertise in human immunology, mucosal immunology, infectious diseases, vaccine responses, epigenetics, and tissue bioengineering.

Name (Department)	E-mail	Research Description
Onigbanjo, Mutiat (Pediatrics)	monigbanjo@som.umaryland.edu	Process improvement in primary care, immunizations, HealthySteps, social needs in primary care, food insecurity, developmental delay, I&T referrals, firearm safety in primary care
Tepper, Vicki (Pediatrics)	vtepper@som.umaryland.edu	Understanding chronic illness and its impact on the cognitive, emotional, and social functioning of children and youth and their families is the hallmark of my work as a pediatric psychologist. My current work focuses on the transition of adolescents living with a chronic illness from pediatric to adult medical care.
Tookhan, Krista (Peds)	ktookhan@som.umaryland.edu	Please email for more information.
McCarthy, Margaret M (Pharmacology)	mmccarth@umaryland.edu	Our laboratory focuses on the neuroimmune system in normal and disrupted brain development with an emphasis on the biological origins of sex differences in neurological and neuropsychiatric disorders. We also study the impact of cannabis exposure on the developing brain. We use the laboratory rat as our model and employ a combination of behavioral, cellular and molecular approaches with an emphasis on cutting edge transcriptomics and neuroimaging.
Qiu, Yun (Pharmacology)	yqiu@som.umaryland.edu	My research is focused on molecular mechanisms underlying therapeutic resistance in prostate cancer. We are studying the roles of the androgen receptor and its functional partners (including transcription regulators, protein kinases and ubiquitin E3 ligases) in prostate cancer progression and drug resistance. We are also testing new therapeutic agents for prostate cancer in preclinical models.
Mansour, Daniel (Pharmacy)	dmansour@rx.umaryland.edu	Polypharmacy in Older Adults, Deprescribing in Older Adults, Fall Prevention in Older Adults, Palliative Care in Older Adults
Dennis, Elizabeth A. (Physical Therapy & Rehabilitation Science)	Elizabeth.Dennis@som.umaryland.edu	The bulk of my research focuses on identifying factors that impact dietary quality and implementing lifestyle interventions to reduce chronic disease outcomes and physical function among older adults. More recently, my research has focused on older Veterans with impaired mobility and older adults living in high food priority areas, exploring how disability negatively impacts dietary quality, and identifying barriers to consuming a healthy diet among this population. This research is funded by both a VA Merit and NINR R01. She is the PI of the NIH SEPA funded RAMP Program, a summer research training program that targets 11th and 12th grade high school students from Baltimore City and provides foundational knowledge required to understand concepts across the translational research continuum while providing the skills to perform basic lab techniques and clinical skills.
Meredith, Andrea (Physiology)	ameredith@som.umaryland.edu	In the Meredith Lab, our goal is to understand how ion channels regulate excitability in the brain. We recently defined a rare new neurological disorder, 'KCNMA1-linked channelopathy,' associated with dysfunction of the BK potassium channel (KCNMA1), epilepsy and paroxysmal dyskinesia in children. Current projects include preparing clinical case reports and interfacing with rare disease database websites to collect genotype-phenotype information from patients. Our goal is to collate a comprehensive disease description from the small number of de novo variants known and to identify the mechanistic basis for the disease. Techniques used in the lab include DNA sequence analysis and database mining, patient survey and assessments, electrophysiology, molecular biology, CRISPR-based transgenics and gene editing, and in vivo telemetry (EEGs). The lab would be most appropriate for students interested in neurological disorders and rare diseases. For more info: meredithlab.org
Chang, Yushi (Radiation Oncology)	yushi.chang@um.edu	Please email for more information.
Hankey, Kim G. (Radiation Oncology)	khankey@som.umaryland.edu	Expanding UMB/UMMC Cellular Immunotherapy program to manufacture new investigational products in support of early phase clinical trials for relapsed/refractory leukemias and other cancers. Research, develop, validate

Name (Department)	E-mail	Research Description
		manufacturing techniques for a variety of cell-based therapeutics such as genetically modified immune effector cells, islet cells, mesenchymal stem cells, dendritic cells, and NK cells.
Molitoris, Jason (Radiation Oncology)	jmolitoris@umm.edu	We have multiple clinical research opportunities within the department. I have ongoing research in brain tumors, prostate cancer and esophageal cancer. The department of Radiation Oncology funds summer students for research annually.
Robabeh, Rahimi (Radiation Oncology)	rrahimi@som.umaryland.edu	Please email for more information.
Vyfhuis, Melissa (Radiation Oncology)	mvyfhuis@umm.edu	Cancer Equity/Disparities research
Janowski, Mirosław (Radiology)	mirosław.janowski@som.umaryland.edu	Imaging, Image Guidance, Genome Editing, Nuclear Medicine
Alexander, Richard B. (Surgery)	ralexander@som.umaryland.edu	We are studying the immunology of the prostate gland. This is directed at two primary questions: 1) does autoimmunity contribute to the common finding of inflammation in the prostate and does this contribute to the many morbidities of aging men related to the prostate? 2) Can the immune system be used as a therapy for prostate cancer?
Banerjee, Anirban (Surgery)	anirban.banerjee@som.umaryland.edu	Cancer is an ever-evolving disease which is what makes it dreadful. Thus, it is important to discover new modalities and treatment options, often as a combinatorial treatment approach to gain better therapeutic outcome. Our lab is focused on T cell immunotherapy and targeted cell-based therapy involving modulation of T cells (to fight tumor cells). Specifically, we do cancer immunotherapy in context of how Natural killer cells and T cells from the body's immune system can be modulated to make them potent at cancer-killing and achieve highest level of tumor control by non-invasive methods. We provide great platform for students to understand and perform translational research involving invitro systems and small animal models (tumor-mice models). Students with interest in cancer treatment and immunology are encouraged to apply. For more research details please email: Anirban.banerjee@som.umaryland.edu
Bromberg, Jonathan S. (Surgery)	jbromberg@som.umaryland.edu	Research projects in translational and basic research in transplantation. For translational research, students will be exposed to the elements of instituting and conducting clinical and translational research. They will engage in abstracting data for specific biomarkers from patient EHR, analyzing the data, and writing a report on their findings. For basic research, students will be exposed to basic cellular and molecular immunology of the regulatory, suppressive T cells and how they help prevent graft rejection. They will be assigned a specific project and assays to generate data intended for publication in abstracts and manuscripts from the lab.
Davis, Jeremy (Surgery)	jeremy.davis@som.umaryland.edu	Please email for more information.
Ghneim, Mira (Surgery)	mira.ghneim@som.umaryland.edu	Clinical and Patient Reported Outcomes in Older Adults. Over the last couple of years, I have worked with several 3rd and 4th year medical students on both institutional studies and multicenter trials. The 3rd medical student who assisted in the most recent multicenter trial was included as an author in the manuscript that was published in JAMA-Surgery. The 4th year medical student that assisted with data collection in 2 of the EAST MCT will be included as an author in the upcoming publications. I am happy to mentor any medical students with a vested interest in research

Name (Department)	E-mail	Research Description
		or have developed their own idea/questions that they would like to further investigate in the field of trauma and emergency general surgery.
Mohiuddin, Muhammad M. (Surgery)	mmohiuddin@som.umaryland.edu	Available projects in the Cardiac Xenotransplantation Laboratory: <ul style="list-style-type: none"> • Pre-clinical Cardiac Xenotransplantation in non-human primate from genetically engineered pigs • Establish a life supporting Cardiac Xenotransplantation model in non-human primate • Optimization of immunosuppression regimen for Cardiac Xenotransplantation • To investigate the mechanism of xenograft rejection in Cardiac Xenotransplantation • To investigate coagulation dysfunction in Cardiac Xenotransplantation • To investigate the role of B cells and regulatory T cells in Cardiac Xenotransplantation • Immunotherapy of regulatory T cells in Cardiac Xenotransplantation • Inducing immune tolerance in Cardiac Xenotransplantation
Murthi, Sarah (Surgery)	smurthi@som.umaryland.edu	1. Echo measures in shock, 2. Point-of-care ultrasound training
Sarkar, Rajabrata (Surgery)	rsarkar@som.umaryland.edu	Our research Program involves both clinical research on vascular surgery patients and outcomes as well as device development studies. Medical students have been successful and contributing to this research in many different ways and we look forward to students that are interested in vascular devices and surgery to get involved with our program.
Shah, Aakash (Surgery)	aakash.shah@som.umaryland.edu	Please email for more information.
Siddiqui, Mohummad Minhaj (Surgery)	msiddiqui@som.umaryland.edu	Basic Science Investigation of the metabolic changes that occur in prostate and bladder cancer as it transitions from non-aggressive to aggressive forms. The work is highly translational focused not only on understanding the basic mechanism, but designing studies to examine these changes in human tissue as well as designing trials to correlate metabolic imaging with prostate cancer diagnosis. Clinical Largest ongoing project is in the use of MRI to improve the diagnosis of prostate cancer (see PMID 25626035) but prior projects have included large database studies using SEER and NCDB to retrospective studies looking at urologic cancer outcomes.
Toursavadkoshi, Shahab (Surgery)	stoursavadkoshi@som.umaryland.edu	The vascular surgery clinical team has meetings every Monday in our conference room at 5 pm. We currently have over 20 active clinical research projects on different stages including retrospective and prospective studies. Several MS3-MS4, residents and our 6 fellows are participating in our meetings and I am looking forward to see MS1 in our team. We have an active clinical research program located in vascular center (10th floor main building) ran and supervised by the faculties, fellows and general surgery residents.
Wiseman, James (Surgery)	james.wiseman@som.umaryland.edu	traumatic Cerebral Venous Sinus Thrombosis Clinical impact of early cranioplasty after craniectomy for trauma

Name (Department)	E-mail	Research Description
Wiseman, James (Surgery)	james.wiseman@ som.umaryland.e du	Traumatic brain injuries