

MS1 INTRO Summer Research Program

2018 List of Mentors

Agmon, Aric, PhD, Physiology, Pharmacology, and Neuroscience

- Imaging thalamocortical axons in intact, clear brains: Using transgenic mice in which thalamocortical axons express a fluorescent protein, we will clear intact brain hemispheres using recently developed methods, image the thalamocortical pathway and reconstruct in 3-D the route taken by axons on their way from the three sensory thalamic nuclei to the visual, auditory and somatosensory cortices.
- Fear conditioning of head-restrained mice

Brandmeir, Nicholas, MD, Department of Neurosurgery

- Applying standards of evidence based medicine and quality of evidence to basic science and translational literature
- Designing and implementing a clinical trial for spinal cord stimulation and postural instability/gait dysfunction in Parkinson disease

Carr, Michelle, MD/PhD, Department of Otolaryngology

- Decisional conflict, decision quality, barriers to care and decisional regret in parents who elect surgery for their children
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- Improving perioperative care for children in otolaryngology

Cifarelli, Christopher, MD/PhD, Department of Neurosurgery, Director of Gamma Knife Radiosurgery

- Clinical outcomes of stereotactic radiosurgery using the Gamma Knife™ for management of metastatic CNS disease (Participation in the International Gamma Knife Research Foundation)
- Development of radio-sensitization strategy in the mouse orthotopic GBM xenograft model system

Damron, Fredrick, PhD, Department of Microbiology, Immunology and Cell Biology

- Development and evaluation of vaccines to protect against whooping cough

Dietz, Matthew, MD, Department of Orthopaedics

- Combination topical treatments to treat implant related infections
- Burst elution of antibiotics as a treatment of prosthetic joint infection.
- Electrolysis as an adjunct treatment combine with antimicrobial peptides and silver nanoparticles in the removal of biofilm

Du, Wei, MD/PhD, School of Pharmacy, Pharmaceutical Sciences

- Collaboration between DNA damage and immune responses in leukemic stem cell emergence and expansion.
- Hematopoietic stem cell polarity in bone marrow failure and leukemia
- PARP-NHEJ interaction in cancer drug resistance

Feinberg, Judith, MD, Behavioral Medicine & Psychiatry

- Curing hepatitis C in active injectors, preventing HIV transmission with medication, home visits after overdose to prevent future overdoses
- An interview study in injection drug users hospitalized for endocarditis, and to provide a bridge to care
- Increasing HIV and Hepatitis C testing as well as interest in developing harm reduction programs in 8 southern WV counties

Ivanov, Alexey, PhD, Department of Biochemistry

- “Breast cancer cell dissemination, dormancy and reactivation at the metastatic sites in mouse xenograft model”
- “Negative control of EMT by epithelial-specific transcription factors”
- “Role of the TGF-beta pathway in partial EMT and drug resistance of triple-negative breast cancer”
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- “Negative control of EMT by epithelial-specific transcription factors”
- “Role of the TGF-beta pathway in partial EMT and drug resistance of triple-negative breast cancer”

Jacobson, Geraldine, MD, Department of Radiation Oncology

- Emergency department visits during course of radiation therapy: association with disease site, insurance type and marital status
- Disease stage of inpatient vs outpatient radiation oncology consultations and association with insurance status

Johnston, Richard, PhD, Pathology & Physiology Branch, National Institute for Occupational Safety and Health (NIOSH), Physiology, Pharmacology & Neuroscience, Pharmaceutical Sciences

- Role of Interleukin-18 in Ozone-Induced Lung Dysfunction

Karshenas, Allie, PhD, School of Pharmacy/Clinical & Pharmacological Research Center

- Outside-in Commercialization Portal- HSC through the Office of VP and Executive Dean has built an outside-in Commercialization Portal through which medical and allied health students can get exposed through mentoring and coaching programs to biotech and biopharma companies for a variety of innovative and disruptive technologies.

Kelly, Kimberly, PhD, School of Pharmacy, Pharmaceutical Systems and Policy

- SCAN! Skin Cancer Awareness Now. This project will promote awareness of ways to prevent skin cancer.
- BRIM3 Breast Cancer Risk Informational Materials. This NCI-funded project counsels breast cancer patients about their risk of recurrence.

Kologney, Michael, MD/PhD, Section of Dermatology

- High numerical aperture imaging of skin lesions using image stacking
- Use of a smartphone app to train patients to intuitively recognize melanoma
- Cutaneous mosaicism in fixed drug reactions

Lewis, James, PhD, Department of Physiology, Pharmacology & Neuroscience

- Study of central nervous system, using magnetic resonance imaging (MRI) and physiological measures, resulting from transcutaneous electrical neural stimulation (TENS) as a treatment therapy
- Identifying differences in functional (fMRI) and anatomical circuits for multisensory processing in individuals with versus without autism spectrum disorder
- FMRI study of brain networks for processing natural sounds and spoken language in English and Chinese

Li, Bingyun, PhD, Department of Orthopaedics

- Toxicity studies of new antimicrobial peptides
- Develop and evaluate intra-cellular bacteria under “clinical” conditions
- Develop and test multifunctional implant coatings for open fractures

Lockman, Paul, PhD, Department of Basic Pharmaceutical Sciences

- “The novel imaging techniques to simultaneously measure drug uptake tumor permeability in brain metastases of breast cancer”
- “The development of new formulations and or drug delivery strategies to increase chemotherapeutic concentrations in brain metastases”
- “Developing strategies to inhibit cancer cells from entering into brain tissue”

Mattes, Malcolm, MD, Radiation Oncology Department

- Students with an interest in any area of oncology will have the opportunity to develop and conduct a clinical, epidemiological, or cancer education-oriented research project based on their interests
- Evaluation of different treatment planning techniques in lung cancer radiotherapy and retrospective chart review of WVU patients treated with stereotactic body radiotherapy to assess outcomes

McLaughlin, Mark, PhD, School of Pharmacy, Pharmaceutical Sciences

- Targeted-Immunotherapy for Solid Tumor Treatment

Meares, Gordon, PhD, Department of Microbiology, Immunology, and Cell Biology

- Mechanisms of Inflammatory Gene Expression in Astrocytes

Mehmi, Inderjit, MD, Section of Hematology/Oncology

- Role of platelet inhibition in melanoma outcome: retrospective project
- Ipi/Nivo and maintenance Nivo and imaging: biomarker study to assess response to maintenance Nivo
- Ipi/Nivo and its benefit as second line therapy: retrospective project.
- CDKN2A mutation and relationship to TMB, PD L-1, BRAF, NF-1, NRAS, age, disease burden, outcomes: retrospective project

Najib, Umer, MD, Department of Neurology

- Opioid use by primary care providers in WV for the treatment of Headache disorders
- Prevalence of Occipital neuralgia in Chronic Migraine patients and the effect of its treatment on Migraine outcome
- Meta-analysis of anti-epileptic use in the treatment of Migraine

Nayeem, Mohammed, PhD, School of Pharmacy, Pharmaceutical Sciences

- Role of genetic polymorphisms in cardiovascular including hypertensive cases, profiling oxylipins as biomarkers and future targeted therapy
- Genetic Polymorphism, human & mouse oxylipins and targeted therapy for cardiovascular diseases including hypertension: role of cytochrome P450 2J2 & soluble epoxide hydrolase genes

Olfert, Mark, PhD, Division of Exercise Physiology

- “Effects of nicotine and e-cigarettes cardiovascular and respiratory structure and function”

Patel, Rusha, MD, Department of Otolaryngology/Head and Neck Surgery

- Head and Neck Free Tissue Transfer and Thrombocytosis
- Free Flap and Opioid Use: Relationship Between Reconstruction and Narcotic Dependence after Head and Neck Cancer Resection
- Tumor Imaging Using Near-Infrared (NIR) Dye

Patra, Kamakshya, MD, Section of General Pediatrics

- Healthcare Utilization in BRUE/ALTE

Rajagopalan, Swarna, MD, Department of Neurology

- Characterizing metabolic suppression after severe TBI using PET
- Intracranial multimodality monitoring in the NCCU

Robart, Aaron, PhD, Department of Biochemistry

- Structural Studies of Flavivirus RNA Replication: Mosquito-borne flaviviruses represent important human pathogens such as dengue fever, yellow fever, West Nile, and Zika virus. These positive single strand RNA viruses encode a single large open reading frame flanked by 5' and 3' untranslated regions (UTRs). Flavivirus UTRs are conserved, and fold into highly ordered RNA structures important for viral genome replication and packaging. The goal of this project is to obtain an atomic resolution structure of the Zika virus UTRs, and to biochemically probe the structure to understand how RNA interactions promotes viral life cycle progression.

Rothschild, Bruce, MD, Section of Rheumatology

- Knee instability, its contribution to falling and response to an exercise intervention

- Comorbidities of the crystalline arthritis, calcium pyrophosphate deposition disease
- Occurrence of inflammatory arthritis as a function of smoking (and chewing) history
- HLA-B27 ordering in clinical diagnosis
- Correlation of RBC and platelet morphology with underlying rheumatologic disease

Salm, Adrienne, PhD, Department of Pathology, Anatomy and Laboratory Medicine

- Increasing evidence implicates nanoparticles (NPs) found in polluted air as a source of chronic brain inflammation leading to neurodegenerative conditions
- Project 2 will entail the examination of brains from rodents that were exposed to NPs to determine the route(s) by which these NPs gain entry and then travel within, the central nervous system

Sedney, Cara, MD, Department of Neurosurgery

- Low lumbar burst fracture study of long term outcomes
- Answering Research Questions in Cervical Spine Surgery

Smith, Gordon, MD, School of Public Health, Department of Epidemiology

- Drug overdose epidemiology and prevention, rural opiate use and abuse, injury prevention, linked data to evaluate outcomes, alcohol and substance abuse, motor vehicle injuries ,trauma outcomes, Geographic information system (GIS) studies of health problems in West Virginia

Umer, Amna, PhD, Department of Pediatrics

- Association between perinatal factors and infant/childhood outcomes
- Association between childhood obesity and adult cardiovascular disease

Vona Davis, Linda, PhD, Department of Surgery

- Adipose stem cells induce distinct gene expression profiles in mammary tumor cells and enhance inflammatory signaling

Wan, Edwin, PhD, Microbiology, Immunology & Cell Biology

- Dynamics and functional alternation of immune cells during neuroinflammation
- Dynamics and functional alternation of immune cells post-ischemic stroke

Wang, Shuo, PhD, Chemical and Biomedical Engineering/Physiology, Pharmacology & Neuroscience

- Multimodal investigations of stroke recovery and neural compensation
- Investigating the neural basis for atypical social attention in autism
- Investigating the neural mechanisms for attention and emotion with direct intracranial recording

Watson, David, MD, Department of Neurology

- Characterizing metabolic suppression after severe TBI using PET