

RADIOLOGY RESEARCH UPDATE *Summer 2020, Issue 17*

Department of Diagnostic Radiology and Nuclear Medicine

FACULTY SPOTLIGHT



Assistant Professor **Yajie (Kevin) Liang, MB, PhD**, recently joined UMB in March, moving from Janelia Research Campus of Howard Hughes Medical Institute in Virginia. His expertise includes intravital single cell tracking, multiphoton microscopy and sensor development, as evidenced by numerous peer-reviewed high-profile publications.

One outstanding issue for neural stem cell (NSC) treatment of neurological diseases is the poor migration and integration into pre-existing neural circuits. To address this issue, Dr. Liang uses adult neurogenesis in the olfactory bulb as an in vivo model to study the migration and integration of newly generated cells. For better visualization of cells of interest, he also uses intravital 2-photon (2p) imaging, which enables high-resolution imaging of cellular behaviors in live animals. By

developing a single cell tracking approach (optical cell positioning system, oCPS), he discovered a novel cell migration mode in the adult mouse brain, lateral migration, which may represent an important mechanism for neural progenitors to search for their appropriate integration sites, shedding light on clues to improve the integration of exogenous NSC after transplantation.

Recent progress in 2p imaging and labeling tools has ushered in a new era of intravital imaging in unprecedentedly fine detail at high speed. Dr. Liang has extensive research experience in two aspects of 2p in vivo imaging: 2p microscope and fluorescent sensors. He has been actively involved in the development of advanced 2p microscopes to push the limits in terms of speed (through fast volumetric imaging) and depth (deep brain imaging through GRIN lens). Dr. Liang also has been leading efforts in the development of fluorescence sensors for 2p imaging (e.g., microglia or axon-targeted calcium sensors). These two areas of expertise constitute a complete knowledge base to develop a cutting-edge 2p

imaging platform. Along with the 2p microscope that he is building, his expertise will expand the potential for new innovations for many of the research strengths at SOM, including cancer, neuroscience, stem cell research, inflammation, and transplant science. His recruitment catalyzes a series of interrelated steps building capability, facilitating the use of imaging cores, and integrating computational resources across multiple disciplines.

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DR. TEE AWARDED NIH GRANT



Sui-Seng Tee, PhD, Assistant Professor, was awarded a two-year, \$397,258 grant from NIH for “Fructose Metabolism as a Biomarker for Monitoring Hepatocellular Carcinoma.”

Hepatocellular carcinoma (HCC) is the third cause of cancer related deaths and while treatment options are dependent on accurate assessment of the disease, there is currently no universally accepted staging system. This study proposes to develop blood-based and non-invasive imaging biomarkers to track cancer progression, based on altered hepatic fructose metabolism. The innovative use of fructose metabolism as a biomarker will provide new tools to aid in accurately staging HCC, resulting in early interventions and personalized care for cancer patients.

DR. MILLER AWARDED INDUSTRY GRANT

Timothy Miller, MD, Associate Professor, was funded \$90,270 by MicroVention, Inc for a clinical study entitled "SOFAST: SOFia Aspiration System as the first line Technique" for the treatment of patients with acute ischemic stroke. The study's objective is to assess functional, imaging, and safety outcomes of the SOFIA® Flow Plus 6F Aspiration Catheter when used with the direct aspiration as first line treatment technique for the treatment of patients with acute ischemic stroke in the anterior circulation.

NEW RESEARCH ADMINISTRATION STAFF MEMBER

Murat Kara, MBA is the department's newly appointed Contract and Grants Coordinator. He will be assisting with pre- and post-award management of grants and contracts. Murat has over ten years of experience in budget analysis and worked in this capacity on sponsored and non-sponsored projects at Johns Hopkins Bloomberg School of Public Health. Murat may be

reached at mkara@som.umaryland.edu

FEATURED PUBLICATIONS

Ali Mohammadabadi, MSc, PhD, Postdoctoral Fellow and **Victor Frenkel, PhD,** Associate Professor, were among the authors of “Pulsed Focused Ultrasound Lowers Interstitial Fluid Pressure and Increases Nanoparticle Delivery and Penetration in Head and Neck Squamous Cell Carcinoma Xenograft Tumors,” which was published in *Physics in Medicine and Biology* in June 2020.

Xiaoyan Lan, MD, Postdoctoral Fellow, **Chengyan Chu, MD,** Postdoctoral Fellow, **Anna Jablonska, PhD,** Research Associate, **Yajie Liang, MB, PhD,** Assistant Professor, **Mirosław Janowski, MD, PhD,** Associate Professor, and **Piotr Walczak, MD, PhD,** Professor, were among the coauthors of “Modeling Human Pediatric and Adult Gliomas in Immunocompetent Mice through Costimulatory Blockade,” which was published in *Oncolmmunology* on June 5, 2020. [Epub ahead of print]