FACULTY SPOTLIGHT

Sui-Seng Tee, PhD joined the department in October 2018 as an assistant professor, after postdoctoral training at Stanford University and Memorial Sloan Kettering Cancer Center. His laboratory is interested in studying metabolism in preclinical models of cancer and metabolic disease. To quantify metabolism, he uses a range of biochemical, genomic and imaging techniques, including hyperpolarized magnetic resonance spectroscopy (HP-MRS).

The Department of Diagnostic Radiology and Nuclear Medicine is one of only a handful of locations that has the capability to perform HP-MRS studies. A unique quality of HP-MRS is its ability to quantify metabolic fluxes non-invasively, in real-time. This technology allows tracking of 'heavy,' non-radioactive, carbon-13 labeled molecules as they are broken down in cells and tissues. Dr. Tee

previously has been involved in clinical trials using this technology on prostate cancer patients where HP-MRS revealed increased conversion of carbon-13 pyruvate to lactate. This metabolic alteration is more prominent in high grade cancers and can be used in the future to help doctors decide which patients to treat.

Dr. Tee was awarded a National Cancer Institute R21 grant in July 2020. In this work, he extends his interest in metabolism to study fructose breakdown in the liver. Again, using the paradigm that metabolic alterations occur in disease progression, he proposes to use changes in fructose metabolism as a biomarker to detect liver cancer. In this study, he will use HP-MRS, as well as mass spectrometry, to quantify changes in fructose metabolism in mice with liver cancer. Concurrently, he will study the biological mechanisms that underlie these changes using high-throughput chemical screens and gene knockouts by CRISPR-Cas9.

All of this work is made possible by his team that includes **Xinyan Geng, PhD** (postdoctoral researcher), **Shuoci Su, MS** (technician) and **Annie Brong** (rotation student). Dr. Tee's team is always interested in new collaborations and research directions, especially in the broad areas of metabolism, cancer, and metabolic disease.

GRANTS

Linda Chang, MD, Professor, and **Eleanor Wilson, MD, MHS**, Associate Professor, Department of Medicine (IHV), were awarded $424,874 for an 18-month grant from NINDS for "Neuroimaging and Behavioral Studies to Assess for Neuroinflammation in COVID-19 During Convalescence."

Anna Jablonska, PhD, Research Associate, was awarded $224,448 for a 2-year NIH subcontract from Children's National Health System entitled "Enhanced Intra-Arterial Drug Delivery to the Brain after Blood Brain Barrier Opening: Comparison between Osmotic and MRI-Guided Focused Ultrasound"

Piotr Walczak, MD, PhD, Professor, was awarded $108,592 for a 4-year NIH subcontract from JHU entitled "Non-Contrast MR Imaging of Blood Brain Barrier Permeability in Alzheimer's Disease"

Timothy Miller, MD, Associate Professor, was awarded $86,242 for a 5-year clinical

study contract from Legacy Ventures, PLLC for "Prospective, Open-Label, Multi-Center, Single-Arm Trial Designed to Assess the Safety, Performance and Efficacy of the NeVa Stent Retriever in the Treatment of Large Vessel Occlusion Strokes: CLEAR Study."

Recai Aktay, MD, MPH, Assistant Professor and **Mohummad Siddiqui, MD**, Associate Professor, Surgery, were awarded a $30,000 2021 UMB Institute for Clinical and Translational Research (ICTR) Accelerated Translational Incubator Pilot (ATIP) grant for "Metabolic Imaging in the Diagnosis and Risk-Stratification of Prostate Cancer."

Yajie Liang, MB, PhD, Assistant Professor, was awarded a $30,000 pilot project grant from the American Cancer Society Institutional Research Grant for "Multiplex Single-Cell Functional Analysis Platform under Intravital 2-Photon Microscopy to Interrogate Heterogeneity of Patient-Derived Glioblastoma in a Mouse Model."

Jiachen Zhuo, PhD, Assistant Professor, was awarded $30,000 for an NIH subcontract from MGH Institute of Health Professions, Inc, entitled "A Holistic Approach to Identifying Functional Units of Tongue Motion During Speech."

FEATURED PUBLICATIONS

Wang Z and for the Alzheimer's Disease Neuroimaging Initiative. Brain Entropy Mapping in Healthy Aging and Alzheimer's Disease. *Front Aging Neurosci.* 2020 Nov 10.

Ali Mohammadabadi A, Ahmed N, Frenkel V. Beam Characterization of a Custom, Handheld Focused Ultrasound System using Thermochromic Liquid Crystal Films. *Med Devices Sens*, December 2020.

Chen R. Causal Network Inference for Neural Ensemble Activity. *Neuroinformatics*. 2021 Jan 4. Epub ahead of print.

Isaiah A, **Ernst T, Cloak CC,** Clark DB, **Chang L**. Association between Habitual Snoring and Cognitive Performance among a Large Sample of Preadolescent Children. *JAMA Otolaryngol Head Neck Surg.* 2021 Feb 25. Epub ahead of print.

Gandhi D, **Janowski M**. Stretching the Spring of Endovascular Opportunity in Stroke. *Stroke*. 2021 Mar;52(3):850-851.

Liang X, Su P, Patil SG, Elsaid NMH, **Roys S**, Stone M, **Gullapalli RP**, Prince JL, **Zhuo J**. Prospective Motion Detection and Re-Acquisition in Diffusion MRI using a Phase Image-Based Method-Application to Brain and Tongue Imaging. *Magn Reson Med*. 2021 Mar 4. Epub ahead of print.

Jin SY, **Cao Q**, Yang FH, Zhu HY, Lin YH, Cinar R, Pawlosky, R, Xiong W, Gao B, Koob G, Lovinger D, Zhang L**.** Brain Ethanol Metabolism by Astrocytic ALDH2 Drives the Behavioural Effects of Ethanol Intoxication. *Nature Metabolism* (featured cover article, March, 2021).

OUTSTANDING REVIEWER AWARD

Congratulations to **Miroslaw Janowski, MD, PhD** for being one of twenty *Stroke* board members to receive the fourth annual Outstanding Reviewer award. The criteria used to select the outstanding reviewer awards consist of: the total number of reviews performed, the quality of the reviews as judged by the handling editor on a 1 to 5 scale, and the turnaround time of the review.

ARIN PRESENTATION

Jose Leon, MBA, RT, PET/MR Technologist, presented "PET/MR: A Clinical Perspective" at the 40th annual convention of the Association for Radiologic and Imaging Nursing (ARIN) on March 20, 2021.