When Cheng-Chia “Fred” Wu, MD, PhD, approached his future mentor, Simon Cheng, MD, PhD, about starting an independent project to study focused ultrasound and radiation with immunotherapy, a new area of research for his lab, Dr. Cheng was fully supportive. “Dr. Cheng gave me, a resident-physician, the freedom, with appropriate guidance and supervision, to manage my patient clinic,” Dr. Wu explained. “For my research, he allowed me to develop as a scientist—establishing new collaborations, developing new research techniques and exploring new hypotheses. For all these reasons, I elected to join Dr. Cheng’s laboratory, and through his mentorship I am now able to begin to fulfill my research goals.”

Dr. Wu, one of the recipients of the 2016 ASTRO Resident Seed Grant, is currently working on a project that involves investigating the feasibility of increasing the permeability of the blood brain barrier (BBB) by using ultrasound, and examining whether it will improve immunotherapy in brain tumors. Using a mouse model involving implanting B16 melanoma cells into the brain, he showed that combining focused ultrasound (FUS)-mediated BBB-opening to stereotactic radiosurgery and immunotherapy may enhance the abscopal effect in the tumors on the non-irradiated side of the brain. This preliminary work was presented as an oral presentation at ASTRO’s Annual Meeting this year under the title, “What’s the fuss

“As a radiation oncologist, my goal is to become physician-scientist and a leader in radiation oncology with the objective of providing outstanding and compassionate care for patients, while driving the development of new technology to bridge the gap between the basic sciences and clinical medicine,” Dr. Wu explains. “It is an exciting time in the world of focused ultrasound in which FUS-mediated BBB-opening is being studied in the clinic in patients with brain tumors. This may create a new modality treatment for patients.”

Dr. Wu’s long-term research goals are to lead an develop programs in vascular function (in both cancer and normal tissue settings) as it pertains to radiotherapy, understanding the effect of FUS-induced blood brain barrier openings, and the future role of immunono-cology and radiation therapy.

“My hope is that one day my research efforts can lead to a change in standard-of-care management a move our medical and scientific community closer to a cure, or at least beneficial, life-prolonging treatment for patients.”

Dr. Wu is currently the chief resident in the Department of Radiation Oncology at New York Presbyterian–Columbia University Medical Center. His main areas of expertise include radiation biology, cancer research and tumor vasculature. He completed his MD/PfD training while studying microvasculature pathophysiology in the setting of hypertension, which led to his current interests in vascular biology and radiation oncology. He is currently focused on central nervous system malignancy research, with an emphasis on brain metastasis and glioblastoma