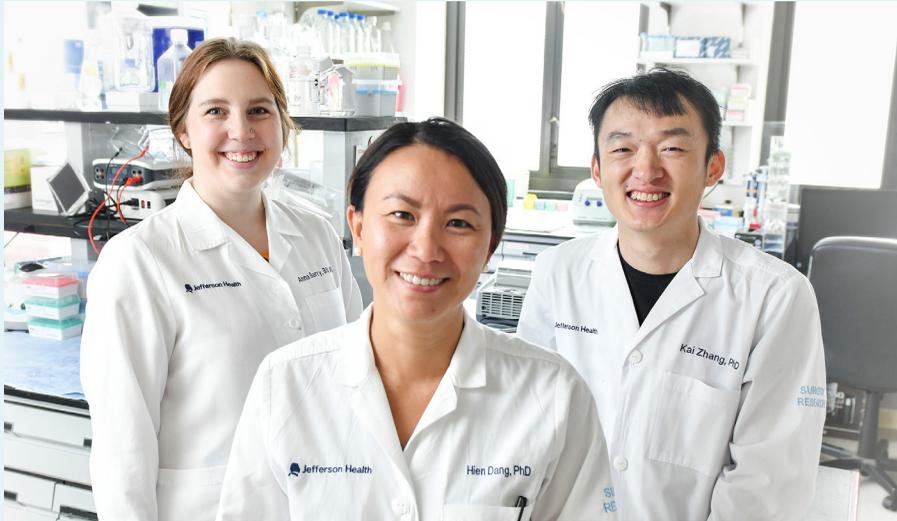


Dang Laboratory Explores Novel Approaches to Diagnosing, Treating Liver Cancer



The Dang Laboratory, located at 603 College Building, is dedicated to studying Hepatocellular Carcinoma (HCC). The laboratory team, led by Hien Dang, PhD (center), includes Anna Barry, MS, and Kai Zhang, PhD.

Since its launch on October 1, 2018, the Dang Laboratory has been dedicated to the study of novel approaches to diagnosing and treating hepatocellular carcinoma (HCC), the most common type of liver cancer. The lab, which is part of the Division of Surgical Research, recently secured two grants and is led by Hien Dang, PhD, with support from Postdoctoral Fellow Kai Zhang, PhD, and Lab Technician Anna Barry, MS.

Before joining the faculty at Jefferson, Dr. Dang worked as a Postdoctoral Fellow supported by a Cancer Research Training Award (CRTA) at the National Cancer Institute, National Institutes of Health in Bethesda, Maryland. While there, she worked in the Laboratory of Human Carcinogenesis in the Center for Cancer Research. At Jefferson, she and her team collaborate with Jefferson surgeons Ashesh P. Shah, MD, Adam S. Bodzin, MD, and Warren Maley, MD, as well as James A. Posey, MD, of Medical Oncology. These collaborations are key to enabling the research, as well as applying the findings to clinical decision making.

"Most of the work we do has clinical implications," Dr. Dang says. "In other words, does it make sense to triage liver cancer patients into specific subtypes? Does it make sense to include biomarkers for picking out subtypes and unique subgroups? When a patient isn't eligible for a liver transplant, how can we best treat them?"

The Dang Laboratory's two most recent grants are from the American Liver Foundation and the American Cancer Society. The first is supporting work to identify specific lethal targets based on the biology of a patient's tumor.

"The grant covers development of a platform to use in the clinic to subtype the patient – that is, to take a piece of tissue and say, 'Here's the genomics. Based on that, the patient belongs to this subtype, and, therefore, this drug will work best,'" Dr. Dang says.

The second grant is enabling the lab to delve into something even more novel: proteins that form aggregates. Sometimes RNA-binding proteins come together to form aggregates rather than remaining independent and fulfilling their own function. Such protein aggregates play a key role in diseases, such as Parkinson's, and Dr. Dang and her team's hypothesis is that these aggregates could play a big part in fueling liver cancer.

"This study is a big deal – something no one else has tackled before," she notes.

In addition to the American Cancer Society-funded research, the lab has been studying another aspect of protein aggregates. Dr. Dang explains that the current paradigm is that micro-RNAs regulate RNAs and, therefore, micro-RNAs can be pivotal in targeting cancer cells. Her team has



Drs. William Preston, Madison Crutcher, Robert Kucejko, and Darshak Thosani

Jefferson Welcomes Four Surgery Residents from Hahnemann

When Hahnemann Hospital announced at the end of June that it was closing its doors, 571 residents and fellows were suddenly facing an uncertain future. By July 5, the Thomas Jefferson University Department of Surgery had conducted interviews with 18 soon-to-be-displaced residents and extended invitations to four: William Preston, MD (PGY1), Darshak Thosani, MD (PGY2), Madison Crutcher, MD (PGY3) and Robert Kucejko, MD (PGY4). All four accepted and are now active members of the Jefferson surgery program.

"We had been hearing rumors about Hahnemann for at least 15 years, so the closure wasn't a complete shock," explains Residency Program Coordinator Donna Guinto. "However, it is highly unusual for residents to

move to a new institution. The last time we hired a displaced resident was when St. Vincent's Hospital in New York City closed in 2010."

Guinto praises all four residents for making a smooth transition to Jefferson. She notes that the ability to stay in Philadelphia was very beneficial for all of them. That was especially true for Dr. Crutcher, whose significant other was also a Hahnemann resident (he found a new home at Cooper University in New Jersey).

"Everyone has been very nice and welcoming," says Dr. Crutcher. "Jefferson got us started as soon as possible so there has been no disruption in our training."

found evidence to the contrary – that micro-RNAs may not actually kill cancer cells. Preliminary findings suggest that RNA-binding proteins can independently regulate RNA transcription. In other words, at best

"Understanding the genomics, or biology, of a tumor is invaluable in helping determine the right course of treatment."

using micro-RNAs to treat cancer could be ineffective; at worst, it could be fueling cancer cells. For yet another project, they are exploring whether protein aggregates are found in actual patient tissues versus

cell models – and whether those aggregates can be used to predict therapy response and/or survival.

The continued work of the Dang Laboratory is helping to inform treatment for all liver cancer patients – whether treated with surgery, chemotherapy, radiation or some combination.

"Understanding the genomics, or biology, of a tumor is invaluable in helping determine the right course of treatment," she concludes.

For more information about the Dang Laboratory, please visit: Jefferson.edu/DangLab