Tracking a killer

“If there is a killer in this world, it is pancreatic cancer,” said Duane Miller, PhD, department chair of Pharmaceutical Sciences. “If you are diagnosed with stage-four pancreatic cancer, you have a one percent chance to survive five years. Today, we use surgery, radiation and chemotherapy to treat this disease. We are interested in researching the chemotherapy and how you develop the best treatments for patients. We hope to find drugs and deliver them in the most important way.”

This ongoing research, being carried out through the UTHSC College of Pharmacy’s Department of Pharmaceutical Sciences under the direction of Subhash C. Chauhan, PhD, and Meena Jaggi, PhD, prompted the Herb Kosten Foundation of Memphis to donate a gift for its support. The gift will be used to provide stipends for three newly recruited graduate student researchers, and UTHSC is matching this gift.

“We are all about pancreatic cancer,” said Alan Kosten, chairman of the board of the foundation and Herb Kosten’s brother. “We would love to have all cancer wiped out. We were pleased to know that he (Dr. Chauhan) was already working in this area. As a foundation, we try to keep our money at home and are happy to support this project at UT.”

Drs. Chauhan and Jaggi joined the UTHSC Department of Pharmaceutical Sciences in 2013. Their research is aimed at the identification and characterization of biomarkers that aberrantly express or localize in cancer cells to develop new tools for early cancer diagnosis and treatment, and their lab is located in the Cancer Research Building located on the Memphis campus. Using nano-particle technology, the chemotherapy process used in pancreatic cancer treatments is refined so that it will more accurately attack cancer cells, causing less damage to healthy tissues.

Berrid Meibohm, PhD, associate dean of Graduate Programs and Research for the College of Pharmacy said, “Over the last two years, research has become a main focus area of the College of Pharmacy. The campus and college administration have provided substantial support to grow our research enterprise. The research activities in the College of Pharmacy are concentrated on translating basic scientific knowledge into improved medical care which comprise research activities in drug discovery, preclinical and clinical development of new medications, clinical research targeted at refinement of applied pharmacotherapy, as well as drug utilization and outcomes research. Therapeutic areas with evolving strength are infectious diseases, pediatrics, cancer therapy, and cardiovascular/metabolic disorders. As the college’s research activities are rapidly expanding, the college is poised to make further important contributions to the therapy of many diseases, and to improve the lives of patients in Tennessee and beyond. The support of Drs. Chauhan and Jaggi by the Kosten Foundation is an excellent example how this important research is also increasingly recognized by the local community.”

Drs. Chauhan and Jaggi are two of the seven research-based faculty who have been hired by the College of Pharmacy in the past 17 months. Other new researchers and their topics are:

- Theodore Cory, PharmD, PhD – Antibacterial and antiretroviral pharmacotherapy
- Justin Gatwood, PhD – Medication adherence and outcomes research
- Santosh Kumar, PhD – Metabolism and drug- and food-interactions with antiretroviral medications
- Frank Park, PhD – Mechanisms of and therapies for acute kidney injury
- Emma Tillman, PharmD, PhD – Parenteral-nutrition associated liver disease

There is a very personal side to the pancreatic cancer research project. With the assistance of the Kosten Foundation, pancreatic cancer survivors met in the UTHSC Cancer Research Building on Sat., Sept. 13, to participate in a focus group. They also shared their stories over lunch with the researchers and then toured the lab.

Research starts with cancer tissue specimens that are prepared for gene expression analysis.

The cancer-causing genes are now tagged using a green fluorescent marker and injected into cells.

Next, cancer-causing genes obtained from the cancer tissues are passed under electric current, allowing them to be isolated and extracted.