abouTown PRESS

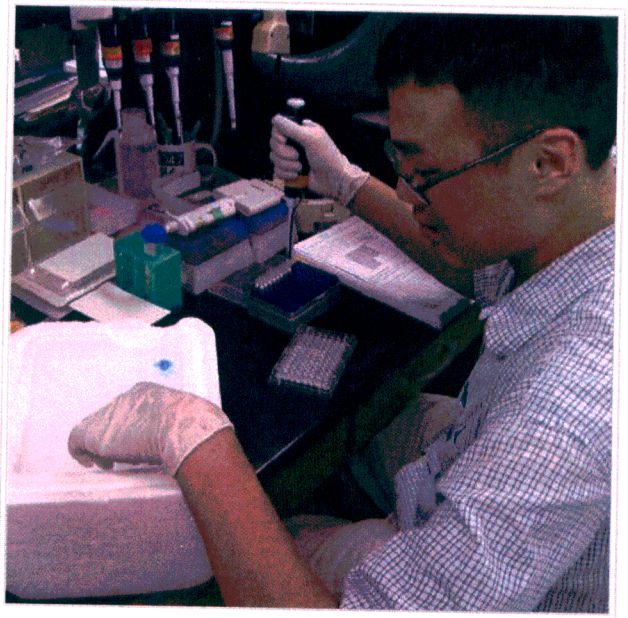
CURRENT ISSUE

CPRIT awards A&M professors grants for cancer research

Print Page

by Daniel Laprea

Published: Tuesday, July 6, 2010 10:12 AM CDT



Tim Hou is one of the students who helps Dr. Chapkin with his cancer research project at Texas A&M. Hou is a graduate student in biochemistry and biophysics.

According to the American Cancer Society, over half a million Americans will die of cancer this year. Cancer is the second most common cause of death in the United States, so nearly one of every four deaths is caused by cancer.

"The cost of cancer to Texas every year is about $30 billion, so it's extremely important that we fight this terrible disease," Texas A&M Vice President for Research Jeffrey Seemann said. "Texas A&M is saying that we very much want to be part of that fight."

Two Texas A & M professors are contributing to that fight through their cancer research which has been recently funded through The Cancer Prevention and Research Institute of Texas (CPRIT). Dr. Robert Chapkin was awarded with an annual $200,000 grant for two years. Dr. Darwin Prockop, professor of molecular and cellular medicine at the Texas A&M Health Science Center in Temple, received an annual $300,000 grant for three years. Prockop is also holder of the Stearman Chair in Genome Medicine and the director of the Institute for Regenerative Medicine at the center. Both grants were announced earlier this year on March 23 and were formally distributed on June 1.

Three years ago Texas voters approved a constitutional amendment to establish CPRIT, authorizing the state to award $3 billion in bonds to fund innovative cancer research and prevention programs and services in the state. The main goal of this research institute is to promote and commercialize advanced cancer research and to improve access to scientific-approved prevention programs and services. A team of more than 100 scientists analyzed 900 proposals submitted to the Institute, and 66 research projects were selected.

"CPRIT has done a very credible job of getting the highest caliber scientists in their fields to review the proposals," Chapkin said. "I believe Texas will thrive because from an investment like this. It makes this state an extremely desirable [place] for researchers."

"CPRIT is providing jobs for people in research laboratories, and it may provide a new therapy with some types of cancer," Prockop said.

With the assistance of research associates, graduate and undergraduate students, Chapkin's research is focused in understanding how adult stem cells in the colon respond to environmental factors, specifically to diet. Sufficient evidence from scientific literature and from Chapkin's laboratory predicts that colon cancer is a disease that is affected by diet. Therefore, his research is concentrated in finding how diet can protect against or lead to colon cancer.

"Within two years, as proposed, we should be the first to ever see whether diet affects intestinal stem cells," Chapkin said. "This will further strengthen why diet is such a powerful agent in really sculpting our biology, and it will [provide] further evidence to Americans that they can substantially enhance or reduce the risk of dying from serious diseases by making lifestyle changes."

There are two types of stem cells, embryonic and adult stem cells. Adult stem cells act as a repair system for the body by restoring dying cells and regenerating damaged tissue. Stem cells are very difficult to find in a colony of cells because they naturally blend in with other cells. Chapkin utilizes adult stem cells from mice models. These mice have been genetically manipulated in their chromosomal DNA, so when the stem cells grow they change color, aiding the ability to find them.

"Stem cells have been really difficult to identify until very recently," Chapkin said. "It's like looking in a large crowd for terrorists. They blend right in."

The key element in fighting cancer is to find the cancer stem cells, which have similar characteristics as normal stem cells. Cancer stem cells are believed to be the driving force for tumors and hematological cancers. Chapkin hopes to find how diet can reduce or eliminate the development of cancer stem cells in the large intestine, so that people can prevent from getting the disease in the first place.

"That's the difficulty, trying to find those cancer stem cells," he said. "Keeping people from ever getting the disease is the long-term goal of my research. Keeping people healthy longer."

Dr. Prockop leads a similar research. He studies adult stem cells in tissues and utilizes a reservoir to regenerate damaged or aging cells as they develop into one or two different kinds of tissue. With a team of colleagues, Prockop uses these adult stem cells to fight various diseases like cancer. He has predicted from dramatic laboratory results that modified adult stem cells could eventually kill cancer, he said.

"The next step is to take this idea of manipulating anti-cancer genes from cells to animal models and then to humans," Prockop said. "From there, we'll discuss its commercialization for widespread use. The Institute of Regenerative Medicine also will provide academic programs for career development, job training, and serve as an engine of new scientific development for the state of Texas."

Research projects like the ones Chapkin and Prockop have been executing in the Texas A&M system have experienced tremendous support from various political leaders, including Governor Perry.

"Texas continues to be on the forefront of cancer research and treatment thanks to the dedicated work of our medical and research communities," Perry said. "The groundbreaking ideas created as a result of these investments will bring us one step closer to finding a cure for this indiscriminate killer."

Chapkin also believes that with the help of CPRIT, Texas will continue to grow into a richer research community. He has hopeful expectations for his research.

"This grant is like a little seed we are putting in the ground now," he said. "Hopefully, it will blossom into a very fruitful tree that will allow us to prove some of the critical questions [about colon cancer]."