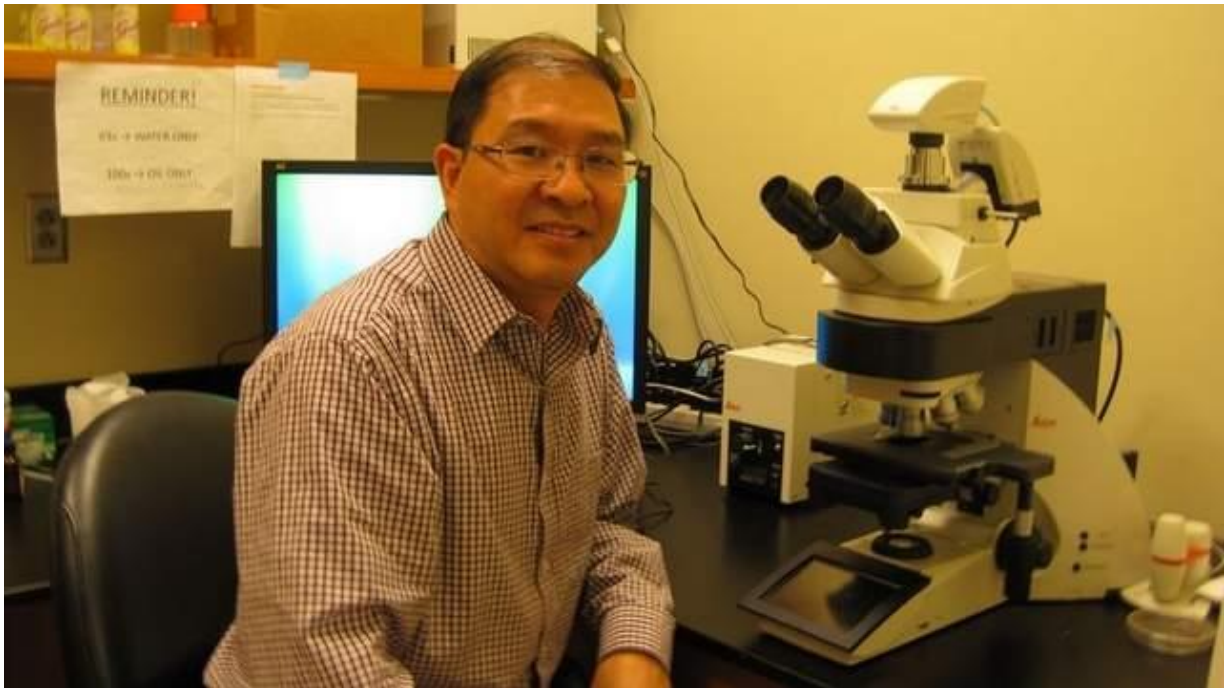


Stopping cancer in its tracks

Associate professor's research could yield 'new cancer treatment process'

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Written by Megan McCreery



FSU associate professor Dr. Yanchang Wang sits in the research building of the university's College of Medicine. / Megan McCreery/FSView

Cell division works flawlessly most of the time. However, in some cases, the division into two daughter cells can malfunction, which can be a factor in the cause and spread of cancer. Dr. Yanchang Wang, an associate professor in the College of Medicine's Department of Biomedical Sciences, believes that through his research over the next four years, he may, in his own words, be able to "introduce an entirely new cancer treatment process."

Wang recently received a \$1 million NIH RO1 research grant to pursue his studies and experimentation regarding the spread of cancer in the process of cell division. For non-science minded people to better understand his upcoming research, he compared his work to a car brake.

As cell division is taking place, there is a checkpoint area that monitors the cell division. When there is some mistake, the checkpoint area pauses cell division so that the problem can be fixed and taken care of. Wang compared the checkpoint system to a brake on a car, a necessary

function.

Wang's research team comprises two others, Dr. Fengzhi Jin, Wang's research scholar scientist in his lab, and Kelly McKnight, a graduate student in Wang's lab. He hopes to add another graduate student to his research.

Cancer fighting drugs such as Taxol, developed by FSU's own Dr. Robert Holton from the chemistry department, work to block cancer cells from further dividing. The problem is that after these cells have been exposed to the drug for a certain period of time, they begin to resist the drug and can continue dividing, which only aids in the spread of cancer.

"Our end goal is to enhance efficiency of cancer fighting drugs," Wang said. With Taxol, checkpoint activation is not perfect. This is why Wang's research can help so much. Wang's plan is to "activate the checkpoint, repair the mistakes and then regulate the checkpoint." The challenge is figuring out a way to "release the brake" most efficiently and without risks of cancer cells still dividing at the rate they can currently. The hope is to make higher-efficiency drugs that will then activate the "brake" when the drugs are taken.

"This kind of project is very exciting—it's a new concept to figure out a total new way to control the cell division process," Wang said. "We need to think about the future for this project and how we can contribute."

The brake is a very important part of it all. Without this checkpoint, cancer cells can divide and spread freely. Wang hopes that if everything goes properly, they will allow the cells to resume their normal cell division and the cancer fighting drugs and the brake will have an even higher efficiency rate than they do now. Cell division has been Wang's specialty for about 20 years, and he is confident he and the members of his research team can make a positive impact in the cancer-fighting world.

"For this project, our department has a lot of state of the art equipment," Wang said. The research team will have access to a live cell imaging system, which will allow them to better understand and see the cellular and chromosomal structure and function. They will also be using a hyper resolution microscope, which will be very helpful for their project. Wang will be working in a transitional lab, which is equipped with a DNA deep sequencing machine to help determine protein interaction.

Through this research within the next four years, Wang hopes to make cancer fighting drugs much more efficient in the worldwide effort to stop the spread of cancer.