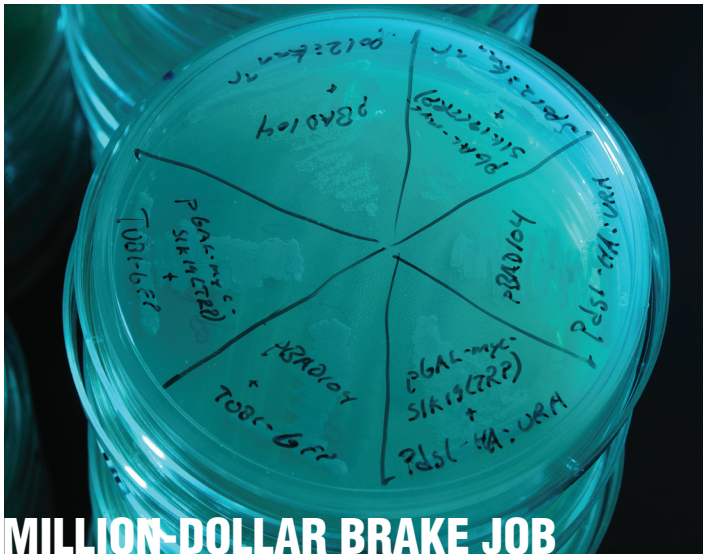

MILLION-DOLLAR BRAKE JOB

Picture Department of Biomedical Sciences researcher Yanchang Wang as a car mechanic about to perform a brake job. In this case, the brakes are not in your 2006 Jetta; they're inside your cells, occasionally slowing down cell division to make sure every chromosome is where it ought to be.

And the problem is not that the brakes don't work; the problem is a shortage of information about how the brakes know when to disengage and let the process of cell division start again.

The mystery behind this "brake job" is considered so important that the National Institutes of Health has awarded Wang a four-year, $1 million grant to get to the bottom of it.

Fact is, bad things happen when cells don't divide the way they should. Let Senior Associate Dean for Research and Graduate Programs Myra Hurt put it in perspective: "The most important thing that happens in terms of life on this planet is the 100-percent accurate duplication of the genome and the absolutely perfect segregation of those copies into two cells. The cell has lots of machinery to make sure that happens correctly."

Researchers already know that the segregation of duplicated DNA into daughter cells during cell division requires that chromosomes be attached in exactly the right way. They also know that a "checkpoint" mechanism monitors any mistakes in that attachment process – and stops everything until any mistakes are corrected.

The specific question Wang is asking in this project is: After the mistakes in the attachment process have been corrected, exactly how is the brake released, thereby allowing cell division to continue? Timing is everything, since a premature "brake release" also results in what's known as chromosome missegregation. And that can lead to such outcomes as birth defects and cancer.

"This research," Wang said, "will potentially uncover new targets for cancer diagnosis and treatment."