Researcher Looks at Ways to Detect Cancer in Urine Samples

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Dr. Yinfa Ma has developed a method for pre-cancer screening that uses urine samples for detection. Ma hopes to be able to predict types of cancer as well as severity.

"Cancer is the second-highest cause of death among all diseases," says Ma, a Curators' Teaching Professor of chemistry at Missouri University of Science and Technology. "Early diagnosis of cancer is crucial, but not many people want to go to the hospital to undergo costly, invasive cancer screening."

The research builds on existing knowledge of pteridines, compounds that help regulate the metabolism of cells. Ma found that six pteridine derivatives can be detected in urine samples, and that levels of some pteridines increase significantly if there is a tumor inside the body.

Most importantly, Ma has discovered that one molecule, called oncopterin, exists in the urine of cancer patients but not in healthy human samples.

Ma's prototype instrument, appropriately called a P-scan, is used to screen urine for oncopterine and six other pteridine bio markers. The oncopterin level in urine indicates whether cancer is likely to develop, and varying levels of the six pteridines can actually provide a "fingerprint" of the type of cancer.

"I won't give up," Ma says. "I will continue to work on this project until

we have succeeded and can market the instrument to save people's lives."

Provided by Missouri University of Science and Technology

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