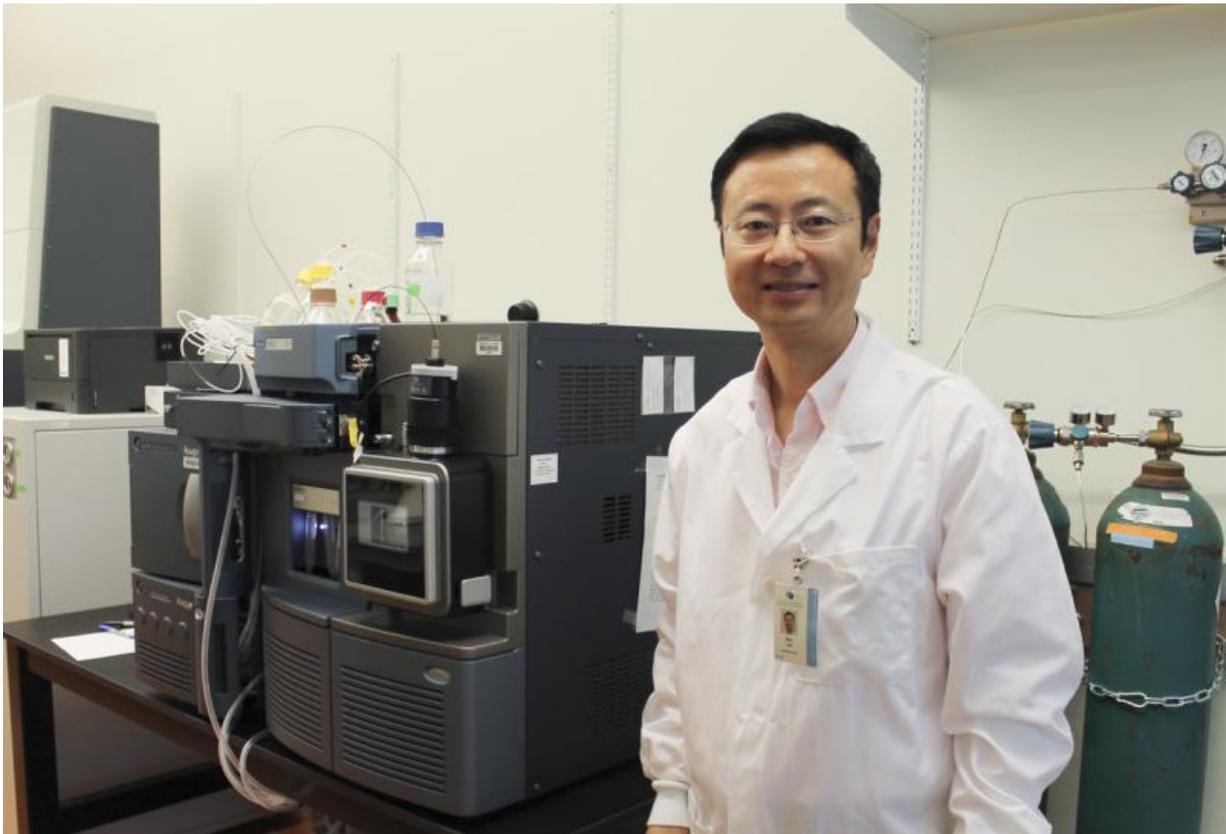


Researchers discover new way to measure if a person is pre-diabetic

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UH Cancer Center researchers aim to continue developing the blood test technology. Credit: UH Cancer Center

A panel of markers have been discovered that helps identify if a person is pre-diabetic by measuring the fatty acids in their blood. This discovery

by University of Hawai'i Cancer Center researchers may allow physicians to warn patients years before the onset of diabetes, therefore allowing them to change their lifestyle patterns potentially avoiding the diagnosis of a chronic disease.

"Currently there are no clinical tests that tell you the likelihood of developing diabetes, only exams that tell you for example if someone that is pre-diabetic has relatively high blood sugar or insulin levels," said Dr. Wei Jia director of the UH Cancer Center's Metabolomics Shared Resources Program. "To know if you are likely to get diabetes in a few years is an important discovery. People can hopefully get tested for the disease during physical exams in the future."

The unsaturated fatty acid markers recently identified in a study published online in the journal *EBioMedicine* can mark if someone is pre-diabetic long before conventional ways of measuring the disease. The levels of these [fatty acids](#) can change up to 10 years before the individuals are diagnosed with diabetes.

The markers through a blood sample test may help predict the risk of developing pre-diabetes and metabolic syndrome, which is a group of conditions including elevated blood pressure, insulin resistance and high glucose level.

"It is conventionally assumed that if people are obese they are in risk of being pre-diabetic. However, sometimes people who are obese can still be healthy. If people know they are specifically pre-diabetic they can have a more targeted way of treating it," said Dr. Jia.

Obesity is associated with the risk of developing type-2 diabetes, nonalcoholic fatty liver disease, cardiovascular disease and cancer. However, it has been increasingly recognized that obesity is not a homogeneous condition and about 25 to 40 percent of obese individuals

can actually maintain healthy status with no apparent signs of health complications.

Dr. Jia and his research team conducted a metabolomics study on four independent cohorts that involved a total of 452 participants, in collaboration with scientists at Shanghai Jiao Tong University affiliated Shanghai 6th People's Hospital.

The team performed a cross-sectional study with metabolically healthy and unhealthy obese subjects, a longitudinal study to observe the occurrence of developing pre-diabetes over as long as ten years, and two studies to evaluate the therapeutic effects on subjects who underwent metabolic surgery or received very low carbohydrate diet for eight weeks.

The researchers aim to continue developing the blood test technology, and eventually have it available for physicians.

More information: *EBioMedicine*,
[dx.doi.org/10.1016/j.ebiom.2015.09.004](https://doi.org/10.1016/j.ebiom.2015.09.004)

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