

New insights into how fatty liver disease progresses to cancer

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The buildup of fat in the liver known as fatty liver disease sometimes leads to hard-to-treat liver cancer. Scientists don't understand why the cancer risk is higher for fatty liver disease caused by excessive alcohol consumption than for non-alcoholic fatty liver disease, which is associated with obesity and type 2 diabetes.

New research has uncovered important differences in the biological pathways that lead to cancer for alcoholic fatty liver disease compared to [non-alcoholic fatty liver disease](#). The findings could benefit the more than 3 million people diagnosed with fatty liver disease each year.

"We want to find out the key factors and pathways that lead to liver cancer in fatty liver patients so we can slow or even prevent the liver cancer," said Yue Jia, MD, Ph.D., a pathology resident at the Harbor-UCLA Medical Center who conducted the study. "It is estimated that this type of liver cancer is responsible for 250,000 to 1 million deaths each year."

Jia will present the research at the [American Society for Investigative Pathology](#) annual meeting during the [2019 Experimental Biology meeting](#) to be held April 6-9 in Orlando, Fla.

In the new study, the researchers examined expression levels of proteins in liver biopsies from a group of patients with alcoholic fatty liver disease and a group with non-alcoholic fatty liver disease. The proteins studied are involved in epigenetic regulation, which controls gene expression, and inflammation, which plays an important role in the disease.

The researchers observed that the two groups of patients showed significant differences in the expression of proteins involved in epigenetic regulators and inflammation. Importantly, these differences matched the ratio of liver cancer development seen for the two groups.

"If, through additional studies, we can prove that the molecules and pathways we identified modulate liver cancer development in the alcoholic fatty liver disease or non-alcoholic fatty liver disease patients, it may help identify new targets for preventing or reducing the risk of liver cancer that arises from other [liver](#) disease," said Jia.

The researchers plan to perform additional experiments in animal models of [fatty liver disease](#) to learn more about how epigenetic regulation and inflammation pathways lead to [liver cancer](#).

More information: Yue Jia will present this research on Saturday, April 6 at 7 p.m. during the Experimental Biology Welcome Reception in Valencia Ballroom ABCD, Orange County Convention Center and on Monday, April 8, from 11:45 a.m.-12:45 p.m. in Exhibit Hall-West Hall B (poster A67 662.67) ([abstract](#)).

Provided by Experimental Biology

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