Biomarkers for Liver Fibrosis

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SUMMARY

Liver fibrosis may result from a wide variety of conditions including chronic alcohol exposure, hepatitis B virus (HBV) infection, non-alcoholic fatty liver disease (NAFLD), hepatitis C virus (HCV) infection, Wilson's disease, alpha-1-antitrypsin deficiency, hemochromatosis, primary biliary cirrhosis, primary sclerosing cholangitis, and autoimmune hepatitis. Chronic HCV is the leading contributor to chronic liver disease and represents a worldwide public health concern affecting an estimated 130-170 million people. The liver damage ensuing from HCV infection is also the leading cause of liver transplants in the United States and Europe and a major burden on healthcare services. Because the prognosis of HCV patients is related to the development of fibrosis and the risk of cirrhosis and hepatocellular carcinoma, an accurate evaluation of fibrogenic progression is important for patient care.

Currently, liver biopsies are the primary technique for generating information on the degree of fibrosis; however, they have multiple disadvantages, including risk of complications, cost, and occasionally inaccurate findings due to small specimen size and variability in histology evaluation. These disadvantages have spurred the development of noninvasive methods that can reliably predict, diagnose, and assess the degree of fibrosis.

PNNL scientists have identified blood-based protein markers that allow methods of diagnosing or prognosing liver fibrosis in patients. The methods are based upon the detection and abundance measurements of panels of liver fibrosis-related protein markers in patient samples, comparing the detected protein abundances to appropriately matched controls representing someone who does not have liver fibrosis or who has non-progressing liver fibrosis, and diagnosing or prognosing liver fibrosis when there is differential expression of said markers between the sample and the controls. Comparisons were made with both transplant liver patients and non-transplant patients. The PNNL-developed methods provide non-transitory computer-readable media with computer-executable instructions that allow a computing system to perform the methods and systems for analyzing a sample for the diagnosis or prognosis of liver fibrosis.

PATENTS & INTELLECTUAL PROPERTY

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- 9,651,563
TECHNOLOGY PORTFOLIO(S)

■ Biomedical

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