Novel biomarkers may provide guide to personalized hepatitis C therapy

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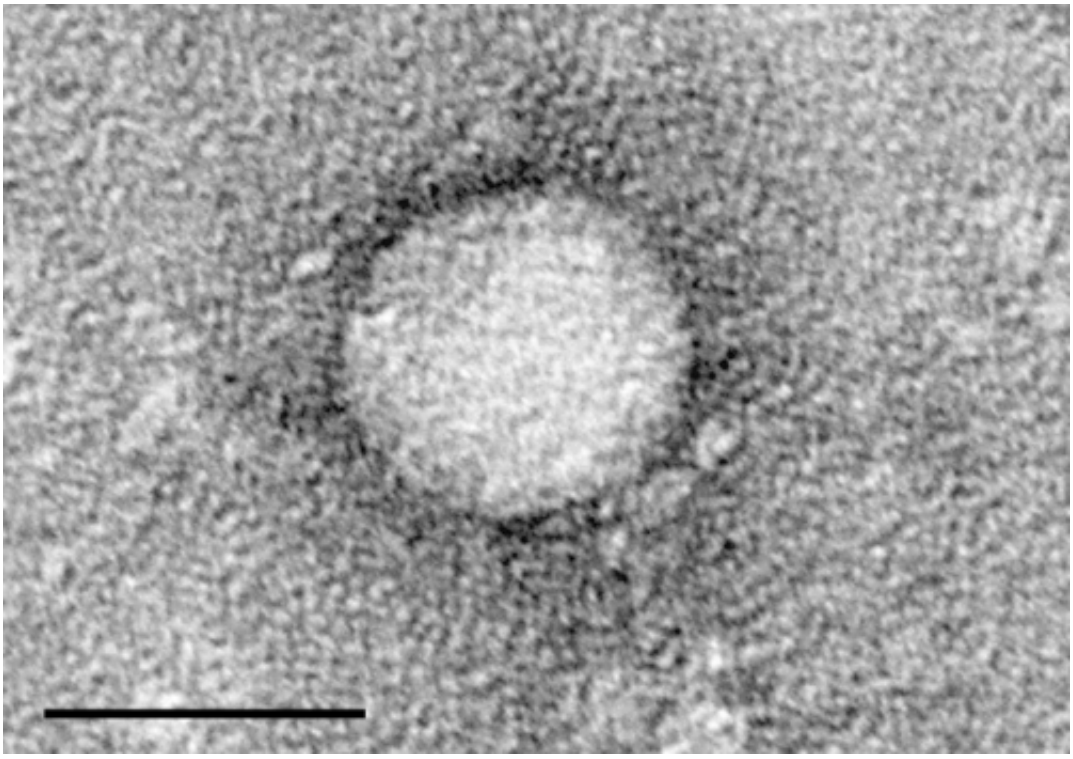

Electron micrographs of hepatitis C virus purified from cell culture. Scale bar is 50 nanometers. Credit: Center for the Study of Hepatitis C, The Rockefeller University.

A simple blood test can be used to predict which chronic hepatitis C patients will respond to interferon-based therapy, according to a report in the May issue of *Cellular and Molecular Gastroenterology and Hepatology*, the basic science journal of the American

Gastroenterological Association.

"While highly effective direct-acting antivirals have become the new standard of care for patients with hepatitis C, these treatments come with a hefty price tag," said lead study author Philipp Solbach, MD, from Hannover Medical School, Niedersachsen, Germany. "There may still be a role for the more affordable interferon-based therapies, and with this new information, we can better assess which patients will respond to this less-expensive treatment."

The researchers studied a cohort of HCV-infected patients who received interferon-based therapies and found that levels of oxidized low-density lipoprotein (LDL) in the blood predicted the patient's response to treatment. LDL, commonly known as "bad cholesterol," is easily identified through blood testing, and can be used as a surrogate marker for oxidized LDL.

Once oxidized LDL was established as a marker of treatment response, the authors studied hepatitis C transmission from cell to cell using an in vitro culture system. They found that oxidized LDL inhibited cell-to-cell spread, suggesting a mechanism underlying the relationship between oxidized LDL and a sustained viral response to interferon therapy.

"The study provides important information about the mechanism whereby HCV infection occurs," added Rebecca G. Wells, MD, associate editor of Cellular and Molecular Gastroenterology and Hepatology. "While direct-acting antivirals are coming to the forefront in HCV therapy, this study serves an important role in advancing our understanding of this complex virus."

This work raises the possibility that drugs that inhibit viral entry into cells may be useful add-ons to interferon therapy for hepatitis C virus; additionally, similar approaches may be effective for other chronic viral

infections. Further studies testing entry-inhibiting drugs are needed.

Hepatitis C chronically infects about 160 million people worldwide, and is a major cause of illness and death from hepatocellular carcinoma and end-stage liver disease.

More information: For more on this study, read the commentary in *Cellular and Molecular Gastroenterology and Hepatology* by Markus von Schaewen and Alex Ploss.
cmghjournal.org/article/S2352-345X(15)00063-6/pdf

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