

Gene variants protect against relapse after treatment for hepatitis C

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Researchers at the Sahlgrenska Academy, University of Gothenburg, have identified a gene, which explains why certain patients with chronic hepatitis C do not experience relapse after treatment. The discovery may contribute to more effective treatment.

More than 100 million humans around the world are infected with hepatitis C virus. The infection gives rise to chronic [liver inflammation](#), which may result in reduced [liver function](#), [liver cirrhosis](#) and liver cancer. Even though anti-viral medications often efficiently eliminate the virus, the infection recurs in approximately one fifth of the patients.

Prevents incorporation in DNA

Martin Lagging and co-workers at the Sahlgrenska Academy have studied an enzyme called inosine trifosfatas (ITPase), which normally prevents the incorporation of defective building blocks into RNA and DNA.

Unexpectedly they found that the gene encoding for ITPase (ITPA) had significance for the treatment outcome in [chronic hepatitis C](#) virus infection.

Five times lower risk

Earlier studies had shown that approximately one third of all people

carry variants of the ITPA gene that result in reduced ITPase activity. The research team at the Sahlgrenska Academy showed that patients with these gene variants exhibited a more than a five times lower risk of experiencing relapse after treatment.

Relapse a significant problem

The study encompassed over 300 patients and was carried out in cooperation with hepatitis researchers in several Nordic countries.

"Relapse after completed treatment is a significant problem in chronic hepatitis C, and the results may contribute to explaining why the infection recurs in many patients. Our hypothesis is that a low ITPase activity results in defective nucleotides being incorporated into the virus RNA, which makes the virus unstable," Martin Lagging said.

Important to other virus infections

According to Martin Lagging, the discovery may also have significance for other [virus infections](#).

"A medication that interferes with the enzyme's activity could have a broad antiviral effect, but this must be further investigated in future studies."

More information: Variants of the inosine triphosphate pyrophosphatase gene are associated with reduced relapse risk following treatment for HCV genotype 2/3, [DOI: 10.1002/hep.27009](https://doi.org/10.1002/hep.27009)

Provided by University of Gothenburg

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