

# EXPLAINED: 2020 NOBEL PRIZE IN PHYSIOLOGY OR MEDICINE

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Harvey J. Alter, Michael Houghton and Charles M. Rice | Photo Credit: [Nobelprize.org](http://Nobelprize.org)

The [2020 Nobel Prize in Physiology or Medicine](#) was jointly awarded to Harvey J. Alter, Michael Houghton and Charles M. Rice for the discovery of Hepatitis C virus.

Hepatitis C is a blood-borne virus and causes Hepatitis C disease which affects the liver. According to WHO, "globally, an estimated 71 million people have chronic hepatitis C virus infection and a significant number develop cirrhosis or liver cancer."

In 2016, it was estimated that approximately 3,99,000 people died globally from hepatitis C.

Harvey J. Alter who was studying hepatitis in patients who had received blood transfusions, found many unexplained infections. Tests for Hepatitis A and Hepatitis B virus infection showed that they were not the cause. His team demonstrated that blood from these patients could transmit the disease to chimpanzees, and more studies showed that an unknown infectious agent was behind this. The mysterious new illness was termed "non-A, non-B" hepatitis.

Learn more about the 2020 [#NobelPrize](#) in Physiology or Medicine

Press release: <https://t.co/eGxjMgrZTQ>

Advanced information: <https://t.co/60S9MjmLek> [pic.twitter.com/gN32y3HT3X](https://pic.twitter.com/gN32y3HT3X)

This new virus could not be isolated for several years using the traditional techniques for virus isolation. Michael Houghton and his team created a collection of DNA fragments from the blood of an infected chimpanzee and thoroughly searched it. They found a novel RNA virus belonging to the Flavivirus family and named it the Hepatitis C virus.

To understand if this new virus alone could cause hepatitis, Charles M. Rice used genetic engineering, generated an RNA variant of the virus and injected it into the liver of chimpanzees. The virus was detected in the blood and the chimpanzees exhibited changes similar to those seen in humans with the disease. This was the final proof that the virus alone was the cause behind the unexplained cases of transfusion-mediated hepatitis.

The discoveries by the three Nobel laureates have helped design sensitive blood tests that have eliminated the risk of transfusion-transmitted hepatitis. Their discovery also helped develop antiviral [drugs directed at hepatitis C](#). This has now raised hopes of eradicating the virus from the world population.

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