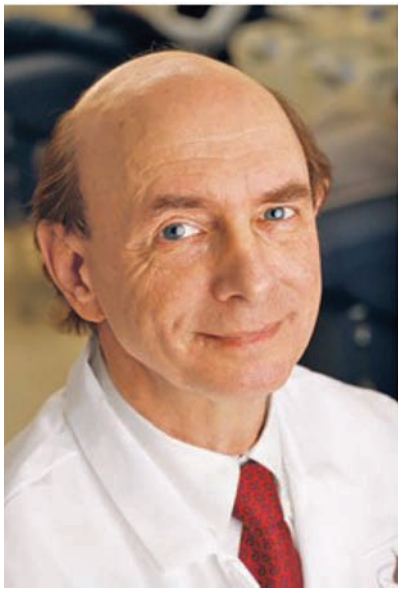
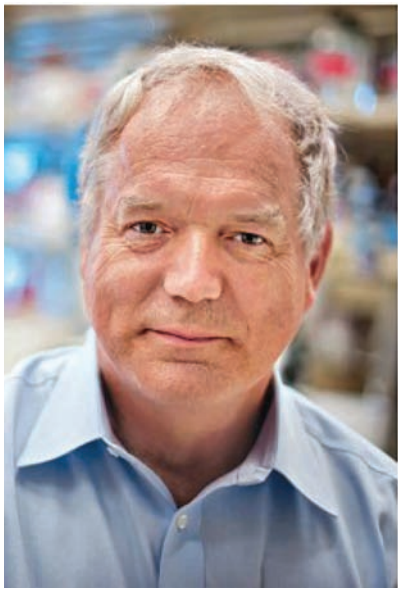
NEWS

THE NOBEL PRIZE IN PHYSIOLOGY OR MEDICINE 2020



Harvey J. Alter
Born: 1935, New York, NY, USA. Affiliation at the time of the award: National Institutes of Health, Bethesda, Maryland, USA



Michael Houghton
Born: 1949, United Kingdom. Affiliation at the time of the award: University of Alberta, Edmonton, Canada

Charles M. Rice
Born: 1952, Sacramento, California, USA. Affiliation at the time of the award: The Rockefeller University, New York, NY, USA

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

Harvey J. Alter, **Michael Houghton** and **Charles M. Rice** have made a decisive contribution to the fight against blood-borne hepatitis, a major global health problem that causes cirrhosis and liver cancer in people around the world.

Liver inflammation, or hepatitis is mainly caused by viral infections. In the 1940's, it became clear that there are two main types of infectious hepatitis. The first, named hepatitis A, is transmitted by polluted water or food and generally has little long-term impact on the patient. The second type is transmitted through blood and bodily fluids and represents a much more serious threat since it can lead to a chronic condition, with the development of cirrhosis and liver cancer.

Harvey J. Alter was studying the occurrence of hepatitis in patients who had received blood transfusions. Alter and colleagues worryingly demonstrated that a large number of cases remained. Tests for Hepatitis A virus infection were also developed around this time, and it became clear that Hepatitis A was not the cause of these unexplained cases. The mysterious illness became known as "non-A, non-B" hepatitis.

Identification of the novel virus was now a high priority. **Michael Houghton** undertook the arduous work needed to isolate the genetic sequence of the new virus that was named Hepatitis C virus.

Charles M. Rice noted a previously uncharacterized region at the end of the Hepatitis C virus genome that could be important for virus replication. Rice also observed genetic variations in isolated virus samples and hypothesized that some of them might hinder virus replication.

The Nobel Laureates' discovery of Hepatitis C virus is a landmark achievement in the ongoing battle against viral diseases. Thanks to their discovery, highly sensitive blood tests for the virus are now available and these have essentially eliminated post-transfusion hepatitis in many parts of the world, greatly improving global health. Their discovery also allowed the rapid development of antiviral drugs directed at hepatitis C. For the first time in history, the disease can now be cured, raising hopes of eradicating Hepatitis C virus from the world population.

https://www.nobelprize.org/prizes/medicine/2020