



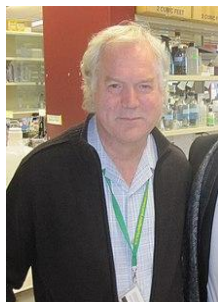
The Nobel Prize in Physiology or Medicine

This year's 2020 the Medicine Prize is awarded to three scientists who have made a decisive contribution to the fight against **chronic hepatitis C** virus. The three pioneers are *Harvey J. Alter, Michael Houghton and Charles M. Rice*. The Nobel Laureates' discovery of Hepatitis C virus is a landmark achievement in the ongoing battle against viral diseases.



Harvey James Alter (born Sep. 12, 1935 in a Jewish family) is an American medical researcher, virologist and physician, his work led to the discovery of the hepatitis C virus. **Alter** is the former chief of the infectious disease section and

the associate director for research of the department of *Transfusion Medicine at the Warren Grant Magnuson Clinical Center in the National Institutes of Health in Bethesda, Maryland*. In the mid-1970s, Alter and his research team demonstrated that most post transfusion hepatitis cases were not due to hepatitis A or hepatitis B viruses. working independently, Alter and Edward Tabor, a scientist at the U.S. Food and Drug Administration, proved through transmission studies in chimpanzees that a new form of hepatitis, initially called "non-A, non-B hepatitis" caused the infections, and that the causative agent was probably a virus. This work eventually led to the discovery of the hepatitis C virus in 1988, for which he shared the Nobel Prize in Physiology or Medicine in 2020.



Michael Houghton (born 1949) is a British scientist. At the age of 17 he was inspired to become microbiologist after reading about Louis Pasteur. Along with Qui-Lim Choo, George Kuo and Daniel W. Bradley, he co-discovered Hepatitis C in

1989. Houghton also co-discovered the Hepatitis D genome in 1986. Houghton was co-author of a series of seminal studies published in 1989

and 1990 that identified hepatitis C antibodies in blood. This work led to the development of a blood screening test in 1990. In other studies published during the same period, Houghton and collaborators linked hepatitis C with liver cancer.



Charles Moen Rice (born August 25, 1952) is an American virologist whose main area of research is the Hepatitis C virus. He is a professor of virology at the Rockefeller Univ. in New York City and an adjunct professor at Cornell

University and Washington University School of Medicine. He was involved in researching the genome of the Sindbis virus and the establishment of flaviviruses as their own family of viruses. The strain of yellow fever virus he used for this work was eventually used for the development of the yellow fever vaccine. While exploring the Sindbis virus, **Rice** described how he produced infectious flavivirus RNA in the laboratory in a 1989 paper published in *The New Biologist*. In 1997, Rice cultured the first infectious clone of the hepatitis C virus for use in studies on chimpanzees in whom the virus was also endemic. In 2005, Rice was also part of a team that showed that a strain of an acute form of the virus identified in a human patient can be forced to replicate in a laboratory setting.