

New focus to combat rising liver disease

July 26 2013

University of Adelaide researchers are investigating how the liver responds to hepatitis C virus (HCV) and why some people can control the virus while others can't. The aim is to find better therapies to combat hepatitis C and associated liver disease.

Speaking ahead of World Hepatitis Day (Sunday 28 July), Head of the Hepatitis C Virus Research Laboratory Associate Professor Michael Beard says the burden of disease from the [hepatitis C](#) virus is rapidly escalating.

"A large number of people were infected with HCV in the 1970s and 1980s before isolation of the virus in 1989, and we're now seeing those people emerging with liver disease," says Associate Professor Beard. "Unfortunately, [liver cancer](#) as a result of HCV infection is on the rise and is expected to double by 2020."

HCV is blood-borne and contracted primarily through injecting drug use and, before bloodbank screening for HCV started in 1990, through blood-transfusion. Unchecked hepatitis C can lead to chronic disease and liver cancer and there are currently more than 220,000 Australians living with chronic hepatitis C.

A unique feature of infection with HCV is that about 75% of individuals develop a chronic infection while 25% spontaneously clear the virus.

"We hope to understand why some people can combat the virus without drugs and why others can't," says Associate Professor Beard. "We'll be

looking at how the [liver cells](#) respond to HCV infection to see how genes are being regulated and how this, in turn, impacts [virus replication](#) and [liver disease](#)."

"If we can better understand this process, we will be able to use this information to help develop a vaccine or improved antiviral drugs." Vaccines exist for hepatitis A and B, but not for hepatitis C.

The Adelaide researchers will be using live imaging of the virus in cultured liver cells to investigate the interactions between the liver cell and the virus in real time.

"Up until now, we've only been able to look at virus infection in a particular snap-shot in time. Now we can look at the dynamics between the cell and the virus, within a living cell," Associate Professor Beard says.

"We're also investigating how some of the emerging new classes of antiviral drugs work and what their mode of action is. This will help develop the next generation of antiviral drugs against HCV."

The research is funded by the National Health and Medical Research Council (NHMRC) under a \$5.5 million program grant with University of Sydney and University of NSW, starting in 2014.

Associate Professor Beard is also convenor of the 20th International Symposium on Hepatitis C Virus and Related Viruses which meets in Melbourne in October and will discuss the latest knowledge in hepatitis therapies and disease.

Provided by University of Adelaide

Citation: New focus to combat rising liver disease (2013, July 26) retrieved 24 April 2024 from <https://medicalxpress.com/news/2013-07-focus-combat-liver-disease.html>

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