MONASH INSTITUTE OF MEDICAL RESEARCH

AN INITIATIVE OF MONASH UNIVERSITY AND SOUTHERN HEALTH

Media Release

Wednesday 9 August, 2006

New hope for hepatitis C research

The mystery surrounding Hepatitis C, a disease that affects millions of people worldwide, is one step closer to being solved.

In a paper published in the August edition of *Journal of Virology*, scientists describe how they reproduced the hepatitis C virus (HCV) in mouse cells. Working with different models, they showed a specific gene blocked the reproduction of the virus in mice.

“When a person becomes infected with HCV, the immune system produces a protein called interferon to fight the infection,” said co-author and Director of the Monash Institute of Medical Research, Professor Bryan Williams. “We now know interferon stimulates a gene called protein kinase R (PKR) to try to stop the virus spreading throughout the body.”

HCV replicates at a very high rate – approximately one trillion viral particles are produced each day in an infected person. Professor Williams’ research will provide a better understanding of how this replication occurs and how and why PKR blocks the production of the virus.

The discovery may also shed light on why some hepatitis C patients respond better to treatment than others.

“As there is no vaccine or cure for HCV, the only treatment on offer for patients is interferon therapy, which aims to slow the progression of the disease. However, there are six different genotypes, or strains of HCV which all react differently to treatment,” Professor Williams said. “We can now explore why some strains are more sensitive to interferon therapy, and how we can adapt treatment to the different strains of the disease.”

Hepatitis C affects 210,000 Australians. Worldwide, it is estimated more than 170 million people suffer from the disease[1]. The virus attacks the liver, causing flu-like symptoms, fevers, abdominal pain, depression, and for two-thirds of patients, chronic liver disease.

“Our research is still in the early stages, but the research model we have created will be a valuable tool in understanding the underlying mechanisms of chronic HCV infection and how the virus responds to interferon treatment” said Professor Williams.

Research collaborators were the Monash Institute of Medical Research, the Department of Microbiology, Immunology and Molecular Genetics, University of Kentucky College of Medicine, Kentucky, USA and the Lerner Research Institute, Cleveland Clinic Foundation, Cleveland, USA.

A full copy of the research paper is available at: http://jvi.asm.org/current.dtl#VIRUS_CELL_INTERACTIONS

1. Hepatitis C Council of Victoria: www.hepcvic.org.au

More information / interview opportunities:
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