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# University of Birmingham scientists show brain vulnerable to Hepatitis C virus

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Scientists at the University of Birmingham have demonstrated for the first time that human brain cells can become infected with the Hepatitis C virus (HCV), it is reported today (Tuesday January 17, 2012).

The team of virologists found that the endothelial cells in the brain possess the four main protein receptors necessary for the blood-brain barrier to be targeted by HCV.

The findings, which are published online today in *Research Highlights* in the journal *Nature Reviews Gastroenterology and Hepatology,* show that cells other than liver hepatocytes can be vulnerable to HCV infection.

Working with the Manhattan Brain Bank in New York, USA, the researchers, led by Dr Nicola Fletcher, of the University's School of Immunity and Infection, detected HCV genomic materal in the brains of four of ten infected patients who posthumously donated brain and liver tissue.

The team went on to demonstrate in laboratory tests that brain cells isolated from the blood-brain barrier could be infected with HCV.

*'This is the first report that cells of the central nervous system support HCV replication,'* says corresponding author Professor Jane McKeating, chair of molecular virology at the University of Birmingham. *'These observations could have clinical implications providing a reservoir for the virus to persist during anti-viral treatment'*

*'The endothelial cells make up the security system of the brain, a kind of bouncer at the door that keeps out undesirable elements,'* explains Dr Fletcher. 'If this barrier is compromised all kinds of substances can gain access to the brain, which may explain the fatigue and other symptoms reported by HCV-infected patients.

The current standard of care for treating HCV-infected patients is only partially effective, she says, so there is a considerable drive to develop agents that target viral specific enzymes as alternative therapies.

*'We anticipate that such agents will be less able to cross the blood-brain barrier compared to existing drugs. We believe our data provides a detailed mechanistic view of how an infectious agent can target the brain.'*

For more information, please contact Jenni Ameghino, Press Office, University of Birmingham. Tel: 0121 415 8134. Mobile: 07768 924156.

- ***Hepatitis C virus infects the endothelial cells of the blood-brain barrier (Gastroenterology, November 2011)***

**Notes to editors**

- **Hepatitis C virus (HCV) is an RNA virus of the Flaviviridae family that poses a global health problem. Infection leads to progressive liver disease and has been associated with a variety of extrahepatic syndromes, including central nervous system (CNS) abnormalities.**

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