Study: How the herpes virus hides in cells

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University of Pennsylvania School of Medicine scientists say they've determined why cold sores caused by a herpes virus keep reappearing.

The study points to a small RNA molecule called a microRNA as the culprit that keeps the latent virus-infected cell alive.

A research team led by Microbiology Professor Nigel Fraser found herpes simplex virus-1, or HSV-1, the virus that causes cold sores and ocular keratitis, produces an miRNA molecule. That miRNA is encoded by the Latency-Associated Transcript gene in the viral genome and works through a process called RNA interference to prevent normal cell death or apoptosis. Thus, the latent viral infection is maintained for the lifetime of the individual because the latently infected cell does not die.

"Although miRNAs encoded by cellular genes are known to be an important mechanism for controlling gene expression, this is one of the first miRNA found to be encoded by a viral genome," said Fraser. "Our study helps show how HSV-1 can maintain a latent infection for the lifetime of an infected individual."

The finding, which might lead to a new way to fight the virus, is detailed in the journal Nature.