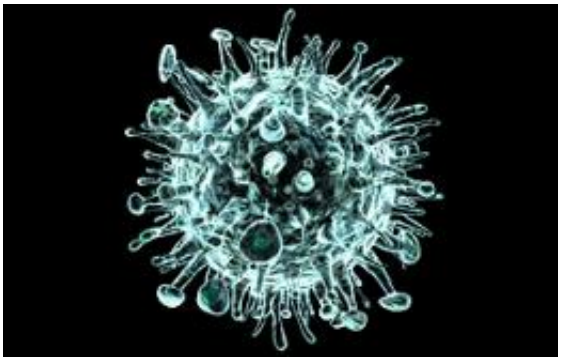
Scientists Discover New Surprise in a Virus' Bag of Tricks

June 18 2010



(PhysOrg.com) -- Yale University researchers have discovered a novel viral survival strategy, an insight that could help scientists better understand how viruses contribute to diseases such as cancer and AIDS.

Viruses have developed a substantial bag of molecular tricks that help them hijack a cell's own internal machinery and reproduce in huge quantities. Many of these tricks help the virus insert genetic instructions coded by DNA or RNA into the host cell and fool the cell into mass-producing copies of the virus.

However, the newly discovered trick, reported in the June 18 edition of the journal *Science*, involves tiny snippets of genetic material called microRNAs that do not code for gene products. Instead, these non-

coding RNAs regulate the activity of other genes.

The Yale team found that Herpesvirus saimiri, a virus that infects monkeys and can cause cancers, seems to have copied other non-coding bits of RNA from the host cell. One of these non-coding RNAs adopted by the virus interferes with the ability of microRNAs made by the host cell to regulate its own genes.

“It is non-coding RNA warfare,” said Joan Steitz, Sterling Professor of Molecular Biophysics and Biochemistry, investigator for the Howard Hughes Medical Institute and senior author of the study. “This is an unexpected new way the virus uses to manipulate its host cell.”

The function of the affected pathway has not been determined, but Steitz notes that some evidence points to the regulation of the cell cycle, which would be of interest to cancer researchers. Also, the virus studied behaves in some ways like HIV, so the findings might assist in AIDS research.

Provided by Yale University

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