

New proteins inhibit HIV infection in cell cultures

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Credit: Peter Baker

(Medical Xpress) -- Yale Cancer Center scientists have developed a new class of proteins that inhibit HIV infection in cell cultures and may open the way to new strategies for treating and preventing infection by the virus that causes AIDS. The findings appear in the online edition of the *Journal of Virology*.

AIDS slowly weakens the immune system and allows life-threatening infections and cancers to thrive. The Yale team isolated six 43- and 44-amino acid proteins that inhibited cell-surface and total expression of an essential HIV receptor and blocked [HIV infection](#) in laboratory [cell cultures](#).

The proteins were modeled after a protein from a papillomavirus that causes warts in cows. This bovine [papillomavirus](#) is related to the human

papillomaviruses that cause [cervical cancer](#) and some head and neck cancers.

“We have constructed an entirely new class of proteins that inhibit HIV infection. These proteins do not occur in nature, so our findings suggest a radical new strategy to prevent AIDS,” said senior author Dr. Daniel DiMaio, deputy director of the Yale Cancer Center, and Waldemar Von Zedtwitz, professor of genetics at Yale School of Medicine. “If these proteins are found to be active in people, they may provide a way to prevent AIDS and its consequences, including cancer.”

Research on papillomaviruses began in the DiMaio laboratory almost 30 years ago, before the AIDS epidemic had emerged and the role of papillomaviruses in cancer was known.

“Of course, there are many hurdles to taking a laboratory finding like this into the clinic, but because these proteins dramatically inhibit HIV in cell culture, they should be evaluated further,” DiMaio explained.

Other authors are Richard A. Sutton, Elizabeth H. Scheideman, Sara A. Mariatt, Yanhua Xie, and Yani Hu, all of Yale.

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Provided by Yale University

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