

Promising Approach to Preventing HIV in Women

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Researchers within the New Orleans Regional Biosciences Initiative are testing a potential breakthrough in the prevention of HIV that affects women. Vaginal microbicides could prevent HIV as well as prevent or limit a wider systemic HIV infection in women.



Ronald Veazey, chair of the Division of Comparative Pathology at the Tulane National Primate Research Center, is leading studies of a vaginal gel that could prevent HIV in women. (Photo by Jackson Hill)

Ronald Veazey, a researcher at the Tulane [National Primate Research Center](#) is testing potential [microbicides](#) called fusion inhibitors that block access to a major receptor HIV uses to infect cells. Veazey and his colleagues have been testing these approaches on macaque monkeys at the primate center with success.

"Our research has demonstrated the effectiveness of this approach in preventing transmission of the virus," Veazey says. "This could lead to extremely promising preventive treatments in the fight against HIV and AIDS. Developing affordable, preventive treatments for women has never been so important."

Mucosal exposure to HIV during intercourse is greater in women than in men, making women especially vulnerable to the virus.

The fusion inhibitor is applied topically to the vagina in a gel form. The potential drug would be one of the first HIV prevention methods completely under a woman's control, a step long called for by public health officials. Half of the world's HIV-infected individuals are female and 25 percent of all new cases of HIV in the United States are found in women.

Public health experts predict that if 20 percent of women in the developing world used a microbicide in half of their sexual encounters, 2.5 million HIV infections could be prevented over a three-year period.

Research at the primate center has shown that the vaginally applied microbicide gel as well as oral administration of the fusion inhibitor protects macaque monkeys from infection. Veazey and colleagues are currently focused on developing cost-effective versions of this and other gels that may enter human clinical trials soon.

Fusion inhibitors specifically inhibit infection by preventing glycoprotein molecules on HIV particles from binding to their receptors on the surface of the immune cell. Veazey is testing a fusion inhibitor that targets one of the main cellular receptors that HIV uses to infect cells on the mucosal surface. This technology works not only to block the receptor, but also can reduce the number of receptors on the cell surface, Veazey says.

Tulane University is a partner in the [New Orleans Regional Biosciences Initiative](#), which is a collaboration that actively coordinates and manages key agencies â€“ public, private, academic and philanthropic â€“ focused on biosciences development throughout the New Orleans area. The initiative also is involved in development and management of the Greater New Orleans Biosciences Economic Development District.