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## New research in SIV-exposed monkeys provides insights for development of HIV prevention strategies

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New research in monkeys exposed to SIV, the monkey equivalent of HIV, suggests that the virus spreads rapidly in the body and triggers early host responses that suppress antiviral immunity, thus promoting viral replication. The study, published in *Cell*, provides a detailed view of the period between initial mucosal exposure to the virus and the point at which it becomes detectable in the blood. A better understanding of these early events, which are difficult if not impossible to study in people with HIV, will inform development of strategies to prevent HIV infection. The work was funded by the National Institute of Allergy and Infectious Diseases (NIAID), part of the National Institutes of Health.

Researchers led by Dan H. Barouch, M.D., Ph.D., of Beth Israel Deaconess Medical Center and the Ragon Institute of Massachusetts General Hospital, the Massachusetts Institute of Technology and Harvard, vaginally exposed 44 rhesus monkeys to SIV and then analyzed the animals in detail during the first few days after viral exposure. The scientists found that SIV disseminates rapidly through the body, with viral RNA present in at least one tissue outside the reproductive tract in most monkeys analyzed one day after vaginal exposure.

The researchers also observed an inflammatory immune response in virus-infected tissues as early as one day after exposure to SIV. Increasing amounts of viral RNA correlated with rising amounts of a host protein that suppresses non-specific, or innate, antiviral immunity. Additionally, the scientists detected early activation of a cell-signaling pathway that correlated with lower levels of antiviral T-cell responses and higher levels of SIV replication.

According to the authors, these findings suggest that the window of opportunity to contain or eliminate the virus at its mucosal port of entry is more limited than previously appreciated. Researchers may apply these insights to the continued development of vaccines, microbicides and drugs aimed at preventing HIV infection.

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Source:

NIH/National Institute of Allergy and Infectious Diseases

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