Chronic HIV-1 infection frequently fails to protect against superinfection

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Natural HIV-1 infection does not always elicit a protective immune response, according to a new study published November 16 in *PLoS Pathogens*. The team of researchers from Washington University, the Fred Hutchinson Cancer Research Center of Seattle, and the University of Nairobi show how HIV-1 vaccines may not be as reliable against superinfection as once thought.

Superinfection of HIV-1 occurs when an individual infected with one strain of HIV-1 acquires a second strain. Currently there are over 20 published cases of HIV-1 superinfection, most of which have been focused on individuals who have been carefully monitored during their infection. These cases prove that an HIV-1 vaccine may not always protect against infection by a different strain. But because there have been reports of selected individuals, it has been unclear how commonly HIV-1 re-infection occurs.

To address this question, Dr. Julie Overbaugh and her research team investigated the incidence of HIV-1 superinfection in 36 high-risk women followed roughly five years after their initial infection.

Seven cases of superinfection were found; five of them occurring over a year past initial infection. Additionally, three of the seven cases displayed a virus from the same HIV-1 genetic subtype.

This study suggests that immune responses found in natural HIV-1 infection, which fail to provide protection against re-infection, may not be the best path to an effective HIV-1 vaccine.

Source: Public Library of Science

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