

## Novel computational model describes the speed at which HIV escapes the immune response

## July 18 2008

Researchers from Utrecht University, The Netherlands, have developed a model that illustrates how HIV evades the immune system. The study, published July 18th in the open-access journal *PLoS Computational Biology*, incorporates detailed interactions between a mutating virus and the immune system.

HIV avoids recognition by the human immune response through the generation of viral variants called "escape mutants". This avoidance seems to thwart effective control of virus replication, causing HIV-infected patients to progress to AIDS. However, it remains difficult to fully understand the dynamics of immune escape, as data from infected patients is relatively sparse.

Knowing this, Drs. Christian Althaus and Rob De Boer performed computer simulations to help interpret longitudinal data derived from HIV-infected patients. They illustrate that the virus often evades the immune response very slowly, on a timescale of years. Depending on the diversity of the immune system, the virus will either be controlled effectively or accumulate detrimental mutations. The results suggest an alternative strategy of vaccine design could be to reduce the replicative capacity of the virus.

Citation: Althaus CL, De Boer RJ (2008) Dynamics of Immune Escape during HIV/SIV Infection. PLoS Comput Biol 4(7): e1000103.



## doi:10.1371/journal.pcbi.1000103

## Source: Public Library of Science

Citation: Novel computational model describes the speed at which HIV escapes the immune response (2008, July 18) retrieved 27 April 2024 from <u>https://phys.org/news/2008-07-hiv-immune-response.html</u>

This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.