

Origin of HIV transmission between males pinpointed

February 10 2010



Davey Smith, M.D., M.A.S. Credit: UC San Diego School of Medicine

A team of scientists, led by a virologist from the University of California, San Diego's Center for AID Research (CFAR), has discovered the origin of strains of human immunodeficiency virus (HIV) among men who have sex with men. The study, which may be important in developing prevention strategies for HIV, will appear in *Science Translational Medicine* on February 10, 2010.

"If we want to stop the HIV epidemic, then we must know the mechanisms by which HIV uses human sex to spread," said principal investigator Davey Smith, MD, MAS, associate professor of medicine in UCSD's Division of Infectious Diseases and in the Veterans Affairs San

Diego Healthcare System, and director of the CFAR Viral Pathogenesis Core.

It is known that most HIV infections worldwide result from exposure to the [HIV virus](#) in semen, made up of seminal cells and the fluid around these cells, called seminal plasma. HIV virus particles contain RNA and exist in the plasma, while infected seminal cells contain HIV [DNA](#).

Using a method of comparing [genetic characteristics](#), called phylogenetic analysis, the researchers studied a group of [men](#) who had sexually transmitted their HIV virus to other men. Phylogenetic models allow researchers to estimate the dates of origin of various groups of viruses; in this way the team was able to determine the source of rapidly mutating HIV viruses by analyzing the viral sequences extracted from the blood and semen of HIV transmitting partners. The team found that recipients shared a more recent [common ancestor](#) with virus from the seminal plasma than with virus found in the seminal cells of their source partner.

"Until now, it had not been established whether HIV RNA or DNA is transmitted during sex," said Smith. "By analyzing the genetic differences between these two forms and the virus that was ultimately transmitted to newly infected individuals we found that it was the HIV RNA form present in seminal plasma that was transmitted."

"The findings from this study will help direct prevention strategies to address the virus in the seminal plasma," Smith said. "By knowing the origin of the transmitted virus, scientists may be able to develop new vaccines, vaginal microbicides and drugs to prevent the spread of sexually transmitted HIV."

Smith notes that because the study involved pairs of men who have sex with men, the findings do not comment directly on HIV transmission to

women. "Since the vast majority of women are infected with HIV by exposure to the virus in semen, HIV [RNA](#) in the seminal plasma is the likely culprit, but this needs to be confirmed," he said.

Provided by University of California - San Diego

Citation: Origin of HIV transmission between males pinpointed (2010, February 10) retrieved 25 April 2024 from <https://medicalxpress.com/news/2010-02-hiv-transmission-males.html>

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.