

Phase III Trial-Thailand

Army-sponsored HIV vaccine study shows—for the first time ever—that it is possible for a vaccine to reduce the risk of HIV infection in humans

Introduction

The Thai Phase III HIV vaccine clinical trial, also known as RV 144, tested the “prime-boost” combination of two vaccines: ALVAC® HIV vaccine (the prime), and AIDSVAX® B/E vaccine (the boost). The vaccine combination was based on HIV strains that commonly circulate in Thailand.

The study was made possible by an international collaboration involving numerous partners from the Thai and U.S. governments, private companies, non-profit organizations and more than 16,000 volunteers.

Results

The trial demonstrated that the vaccine regimen was safe and modestly effective in preventing HIV infection. The results show that the prime-boost combination lowered the rate of HIV infection by 31.2 percent compared to placebo based on the modified intent-to-treat (mITT) population (n=51 vs. n=74, respectively; p=0.04).

Detailed results were presented on October 20, 2009 by the trial collaborators to researchers gathered at the AIDS Vaccine 2009 Conference in Paris, France and published online by *The New England Journal of Medicine* (<http://content.nejm.org/cgi/content/full/NEJMoa0908492>). While the efficacy is modest, this study represents a significant scientific achievement.

The trial results, first announced by trial collaborators on September 24, 2009, are based on the mITT population, which is the most clinically relevant analysis for this proof-of-concept study. Data from the mITT population, which was monitored by the independent Data and Safety Monitoring Board during its periodic review of the study, include all volunteers who entered the study less seven individuals who were already HIV infected on the first day of vaccination.

The vaccine regimen had no effect on the amount of virus in the blood of volunteers who became HIV-infected during the study.

This finding has important implications for the design of future HIV vaccines and how they are tested, however additional research is needed to better understand how this vaccine regimen reduced the risk of HIV infection.

Next Steps

We now have evidence that a safe and effective HIV vaccine is possible, and the results should accelerate research efforts towards a more effective vaccine. The study partners are already consulting with scientific and product development experts to determine the need for additional research of the RV144 vaccine regimen to better understand how it protected against HIV infection.

In addition, we have already learned a great deal from this study, particularly in terms of conducting large-scale HIV prevention trials, and will continue to learn more as additional research is conducted.

Given the significant threat of HIV infection worldwide, an efficacious vaccine is urgently needed as part of a broader prevention effort to help control the epidemic. It is important to note that a vaccine must be seen as part of a comprehensive approach to prevention of HIV infection.

Study Background

With the emergence of an explosive HIV epidemic in Thailand in the early 1990s, Army researchers helped to characterize the heterosexual epidemic, isolated Thai viruses, and made these sequences available to companies developing HIV vaccines. Army researchers have had a long-standing relationship with the Royal Thai Army, Thai Ministry of Public Health and other Thai vaccine experts, and together they developed a plan to test this candidate vaccine in Thailand.

The Thai government has shown a remarkable and successful dedication to HIV prevention, and it has a longstanding commitment to the development of an HIV vaccine as an additional HIV control measure.

October 2003

Study begins in Thailand.

June 2009

Trial concluded on June 30, 2009.

September 2009

Results announced on September 24.

Study Sponsor

The study was sponsored by the U.S. Army and conducted by the Thailand Ministry of Public Health.

The U.S. Military HIV Research Program provided overall project leadership, and the U.S. Army Medical Component – Armed Forces Research Institute of Medical Sciences (AFRIMS) helped execute the trial in Thailand on behalf of the Sponsor.

AFRIMS is a Special Foreign Activity of Walter Reed Army Institute of Research (WRAIR) hosted by the Royal Thai Army and staffed by American and Thai personnel. For almost 50 years, AFRIMS has been America's premier Asian site to study infectious diseases of military importance.

This study was supported by a cooperative agreement with the Henry M. Jackson Foundation for the Advancement of Military Medicine, Inc.



The U.S. Military HIV Research Program (MHRP)—centered at the Division of Retrovirology, WRAIR—is at the forefront of the battle against HIV/AIDS to protect U.S. troops from infection and reduce the global impact of the disease.

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Special Thanks

The U.S. Army would like to thank the Thai men and women who participated in this trial and whose high rate of participation has been essential to its success.

STUDY

- RV144: A Phase III Trial of Aventis Pasteur Live Recombinant ALVAC-HIV® (vCP1521) Priming with VaxGen gp120 B/E (AIDSVAX® B/E) Boosting in HIV-uninfected Thai Adults

SPONSOR

- U.S. Army Surgeon General

FUNDING

- Division of AIDS, National Institutes of Allergy and Infectious Diseases, NIH
- U.S. Army Medical Research and Materiel Command

LOCATION

- Rayong and Chon Buri Provinces, Thailand
- 47 health centers (screening and tracking)
- 8 clinical sites

VACCINE MANUFACTURERS

- Global Solutions for Infectious Diseases-AIDSVAX B/E
- sanofi-pasteur-ALVAC-HIV vCP1521

**Global Solutions for Infectious Diseases (GSID) holds the intellectual property rights to AIDSVAX B/E originally developed and previously owned by VaxGen.*

STUDY EXECUTION

- Department of Disease Control, Thai Ministry of Public Health (MOPH)
- Vaccine Trials Centre, Faculty of Tropical Medicine, Mahidol University
- Data Management Unit, Faculty of Tropical Medicine, Mahidol University
- Chon Buri and Rayong Provincial Chief Medical Offices, MOPH
- Armed Forces Research Institute of Medical Sciences; Thai Component and U.S. Component (USAMC-AFRIMS)
- Division of Retrovirology, WRAIR, MHRP
- U.S. Army Medical Materiel Development Activity, U.S. Army Medical Research and Materiel Command