

## Robert M. Grant, MD, MPH

### Does a Pill a Day Prevent HIV Infection?



**OUR LABORATORY FOCUSES ON** the possibility that antiretroviral agents prevent acquisition of HIV infection. This concept, called “chemoprophylaxis,” is well established for the prevention of infectious diseases for which there is no effective vaccine, including malaria, tuberculosis, pneumonia, and perioperative infections. Antiretroviral agents prevent mother-to-child transmission, and the HIV epidemic among children has virtually vanished in settings where this concept is widely used.

Whether antiretroviral agents prevent sexual transmission of HIV is unknown. We are leading a global clinical trial to find out. We focus on pre-exposure prophylaxis, or PreP, because this approach was more effective in preclinical research in animals and is more forgiving when exposure to HIV is not recognized due to human limitations: denial, misinformation, and misperception. Our study is called the International PreP Initiative, or iPrEx, and is sponsored by the United States National Institutes of Health, with co-funding from the Bill and Melinda Gates Foundation, and drug donated by Gilead Sciences. Enrollment began in Lima, Peru, in 2007 and was completed in December 2009 at all sites in Brazil, Ecuador, Peru, South Africa, Thailand, and the United States. The study involves 425 workers, 2500 participants, and thousands of friends and families. PreP research has become the focal point of prevention research, intersecting with vaccine development, microbicide research, pharmacology, and social and behavioral science.

The iPrEx study has a unique role in the international portfolio of PreP research. The study is the only effi-

cacy study of PreP in gay men, transgendered women, and other men who have sex with men. These communities carry a major burden of the HIV-1 epidemic throughout the Americas and parts of Asia. The burden carried in Africa is increasingly appreciated in part because of surveillance studies supported by iPrEx. Cellular specimens collected for iPrEx will allow us to seek surrogate markers of the protective effect of PreP. Such surrogate markers, if any are found, will greatly accelerate further developments in the field.

Immunological, virological, metabolic, and qualitative substudies are under way to understand how PreP may impact antiviral immune responses, bone and fat, and social behavior.

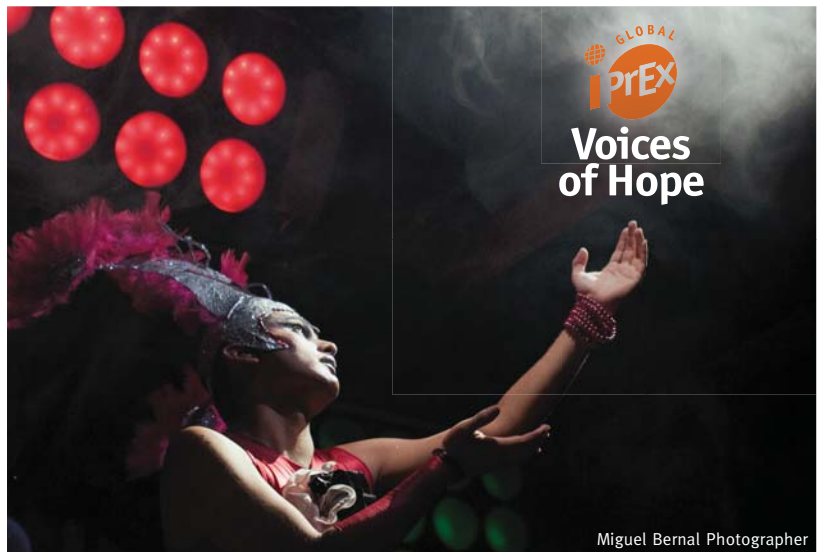
#### RECENT PUBLICATIONS

Grant RM. Antiretrovirals for prevention: PreP, PEP, and microbicides. *Curr. Infect. Dis.* In press.

McConnell J, Bragg L, Shiboski S, Grant RM. Sexual seroadaptation: Lessons for prevention and sex research from a cohort of HIV-positive men who have sex with men. *PLoS One.* In press.

#### Grant Laboratory Members

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Miguel Bernal Photographer

A documentary film was made to explain our collaborative approach to clinical research with communities who are on the front lines of the epidemic. More than 130 interviews were conducted on video in English, Spanish, Portuguese, and Thai. Scientists, community leaders, and participants speak of their vision for research that aims to arm people's struggle to stop the spread of HIV. The film premiered in the United States at The J. David Gladstone Institutes on December 15, 2009.