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HIV research findings made possible by a test developed at CU School of Pharmacy

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An influential new test, discovered and developed in the Colorado Antiviral Pharmacology Laboratory at the CU School of Pharmacy, helps monitor the effectiveness of the HIV prevention drug called Truvada (a combination of tenofovir/emtricitabine), which is taken once daily to prevent HIV infection.

A study presented during the AIDS 2014 Conference and published in *Lancet Infectious Diseases* on the efficacy and safety of prophylactic use of Truvada to protect against HIV infection relied on a test developed at the school. The test measures the amount of tenofovir-diphosphate (a metabolite of tenofovir) in red blood cells, using a dried blood spot. Because of a long half-life, high amounts of the metabolite in the dried blood spot correspond with consistent dosing of Truvada and low amounts correspond with inconsistent dosing. The new test was used in the iPrEx open label extension study (iPrEx OLE) to estimate patterns of tablet use during the study. The new test showed a continuous gradient of increasing efficacy (fewer HIV infections) with increasing drug concentrations. Dr. Peter Anderson, whose laboratory developed the test, said, "Participants in the study who had tablet use consistent with 4 or more tablets per week, as determined by the new test, had no HIV infections (estimated 100% efficacy)."

The US Centers for Disease Control and Prevention (CDC) and the World Health Organization (WHO) recently issued guidelines recommending the use of antiretroviral medicines as an additional method of preventing HIV infection. "Findings from iPrEX OLE are

particularly important in relation to emerging guidelines recommending widespread use of PrEP," said Protocol Chair Robert Grant, MD, PGH of the Gladstone Institutes, the University of California at San Francisco and the San Francisco AIDS Foundation.

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