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RESEARCH BRINGS HOPE FOR THIS WORLD AIDS DAY

SAN FRANCISCO, CA—December 1, 2010—For the AIDS community, Thanksgiving came a bit early this year, and after many difficult years, three announcements give hope and reason for celebration during this year’s World AIDS Day. First, the UNAIDS reported that the pandemic might have crested, and second, two studies from the Gladstone Institutes showed the first evidence that HIV infection can be prevented by drugs and solved a long-standing mystery about how HIV destroys the immune system.

“It is wonderful to be able to announce some promising findings about HIV,” said Warner Greene, director of the Gladstone Institute of Virology and Immunology. “These three are truly good news for everyone and give us real hope that the end of this terrible disease is coming closer.”

The good news began on November 10 with the release of the UNAID 2010 report, which stated, “The overall growth of the global AIDS epidemic appears to have stabilized.” According to the report, new HIV infections and deaths are down by nearly 20%. Fewer people are becoming infected and fewer people are dying from AIDS. In 56 countries around the world, the rate of HIV infection has been stabilized or significantly reduced.

“For the first time, we have broken the trajectory of the AIDS epidemic,” said *Michel Sidibé, executive director of UNAIDS.*

Second, on November 23, an international team of scientists released a finding with the potential to fundamentally change strategies to slow the global HIV epidemic. The study, called iPrEx, showed that individuals at high risk for HIV infection who strictly adhered

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to taking a single daily tablet containing two widely used HIV medications, emtricitabine and tenofovir, experienced an average of 90% fewer HIV infections than those who received a placebo pill. The study, reported in the *New England Journal of Medicine*, is the first evidence that this new HIV prevention method, called pre-exposure prophylaxis or PrEP, reduces HIV infection risk in people.

“The iPrEx study proves that PrEP provides important additional protection against HIV when offered with other prevention methods such as HIV testing, counseling, condom use and management of sexually transmitted infections,” said iPrEx Protocol Chair Robert Grant, MD, MPH of the Gladstone Institutes and the University of California at San Francisco. “As with other prevention methods, the greatest protection comes with consistent use. I hope this finding inspires a renewed commitment from communities, industry and government to stop the spread of HIV.”

Finally, in another study released November 24, Gladstone scientists solved a long-standing mystery about HIV infection—namely how HIV promotes the death of CD4 T cells. It is the loss of this critical subset of immune cells that leads to the development of AIDS. Most immune cells that die during HIV infection are seemingly not infected, a phenomenon formerly described as “bystander cell killing.” Now the Gladstone scientists report that these “bystander” cells are actually the victims of a failed or abortive form of viral infection. Their findings are published in the journal *Cell*.

“Our findings have revealed a completely unexpected mechanism for CD4 T-cell death during HIV infection” said Dr. Greene, senior author of the paper. “These results highlight how a natural cellular defense normally used by the host to repel foreign invaders goes awry in HIV infection, resulting in a profound depletion of CD4 T cells. If untreated, this process ultimately causes AIDS.”

World AIDS Day is celebrated on December 1 around the world. Its purpose is to raise awareness, commemorate those who have passed on, and celebrate victories.

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“We have a long way to go yet to defeat HIV,” said Dr. Greene. “But on this World AIDS Day, as we remember the toll levied by this dread disease, there is real reason to be hopeful, and I am extremely gratified that Gladstone has had a role in making this day a happier one.”

Warner Greene's primary affiliation is with the Gladstone Institute of Virology and Immunology, where he is director and the Nick and Sue Hellman Distinguished Professor of Translational Medicine and where his laboratory is located and his research is conducted. He is also a professor of medicine, microbiology and immunology at UCSF.

Robert M. Grant is the Betty and Hiro Ogawa Endowed Investigator at the Gladstone Institute of Virology and Immunology. He is also a professor of medicine at UCSF.

About the Gladstone Institutes

Gladstone is an independent, nonprofit biomedical research organization dedicated to accelerating the pace of scientific discovery and biomedical innovation to prevent illness and cure patients suffering from cardiovascular disease, neurodegenerative disease, or viral infections. Gladstone is affiliated with the University of California, San Francisco. More information can be found at www.gladstone.ucsf.edu.

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