THE WISTAR INSTITUTE

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The Wistar Institute Receives $17 Million NIH Grant for Personalized HIV Cure Research

Philadelphia-led consortium is selected to tailor HIV curative strategies to participant

PHILADELPHIA — (AUGUST 19, 2025) The Wistar Institute announces the National Institutes of Health (NIH) granted a five-year, $17 million research award to launch iCure Consortium to develop individualized "cure regimens" for HIV. The Wistar-led, iCure Consortium's objective is to advance strategies to cure HIV through tailored personalized medicine.

"Today 38 million people still live with HIV worldwide, and 1.3 million contract the virus each year," said Luis J. Montaner, D.V.M., D.Phil., iCure principal investigator, executive vice president of The Wistar Institute and director of Wistar's HIV Cure and Viral Diseases Center. "For the first time, this grant brings our best team together working towards a cure tailored to each participant by pairing the latest in neutralizing antibody and cell-therapy breakthroughs against the unique, person-specific features of HIV."

iCure Consortium will test a six-part, individually-tailored therapy designed to wipe out the persistent viral reservoir that remains after antiretroviral therapy in an effort to deliver durable, drug-free remission. The project combines six advanced tactics—neutralizing antibodies, mRNA therapy, viral binders, engineered CAR-T and "Natural Killer" (NK) cells, and precision latency "wake-up" drugs—all designed against each patient's unique virus.

"Ending HIV demands more than management—it demands eradication," said Drew Weissman, M.D., Ph.D., iCure co-principal investigator, 2023 Nobel Laureate and Roberts Family Professor in Vaccine Research at the Perelman School of Medicine at the University of Pennsylvania. "This project now allows us to apply our breakthroughs in RNA therapy as part of a cure-directed strategy."

How iCure Works
- Wake the latent virus
- Map and target unique weak spots with tailored antibodies
- Destroy infected cells using "super-charged" CAR-T and NK cells
- Enhance clearance and block relapse with bispecific binders

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In the first step, researchers reactivate the virus in a sample of the participant's blood and identify mutations that the participant has not yet developed antibodies against. They then develop a tailored antibody therapy cocktail specifically designed against these specific mutations.

In the next stage, researchers focus on preventing HIV from returning. To do this, they develop person-specific antibodies or small molecule binders that can act as "homing devices" — beacons that can lead immune cells to the latent virus. Then they genetically modify CAR-T cells and NK cells (immune cells that destroy viruses) to express or use these homing devices to better clear infected cells.

Finally, researchers further enhance NK cells. First, they develop stronger and more durable cells, called adaptive NK cells, by supercharging their virus-killing ability. Then, they deploy small-molecule drugs called bispecifics, which bind NK cells to the infected cells they are targeting.

"iCure takes full advantage of the advances made in understanding how and where HIV hides from the immune system," said Montaner. "We've built on our knowledge and can use that information to identify a first of its kind targeting to a person's unique HIV features."

iCure furthers the research groundwork laid by the BEAT-HIV Martin Delaney Collaboratory (beat-hiv.org), a Philadelphia-based consortium of more than 95 leading HIV researchers co-led by Dr. Montaner.

Montaner called the NIH grant a "once in a lifetime opportunity" that reflects Wistar's track record as a scientific leader in the effort to develop an HIV cure, as well as its grassroots support and collaboration with the HIV community.

"By the end of this study we hope to have a process by which to identify the virus that we need to go after in each person and have a basis to design clinical trials choosing the best of these strategies to move forward," said Montaner.

Other institutions participating in this study include Johns Hopkins Medicine and iCure co-principal investigator Robert Siliciano, M.D., Ph.D., the University of Pennsylvania, Philadelphia FIGHT, the Ragon Institute at Harvard University, George Washington University, Duke University, and Massachusetts Institute of Technology. The iCure program is funded by the National Institute of Allergy and Infectious Diseases, part of NIH, under award number UM1AI191272.

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The Wistar Institute is an international leader in biomedical research with special expertise in cancer research and vaccine development. Founded in 1892 as the first independent nonprofit biomedical research institute in the United States, Wistar has held the prestigious Cancer Center designation from the National Cancer Institute since 1972. The Institute works actively to ensure that research advances move from the laboratory to the clinic as quickly as possible. wistar.org.

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