amfAR Commits Nearly $2 Million Toward Four New HIV Cure-Focused Studies

Each researcher proposes a creative solution to one of various difficult obstacles hindering the decades-long search for a cure for HIV.

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- amfAR funding will support research by Drs. Michael Betts, of the University of Pennsylvania; Carine Van Lint, of the University of Brussels; Colby Maldini, of The Wistar Institute; and Stylianos Bournazos, of The Rockefeller University.
- The researchers' projects focus on utilizing next-generation immunotherapies, like mRNA, CAR T cells, and broadly neutralizing antibodies, to develop a cure for HIV.
- Each award is worth $480,000 over a period of two years.

NEW YORK — amfAR funding will launch four new studies testing innovative strategies to cure HIV. More than 40 million people are living with HIV globally and rates of new infections are increasing in multiple parts of the world including Eastern Europe, Central Asia and the Pacific, as well as several major cities in the U.S. The landscape for funding HIV research and programs has also become progressively unstable, but amfAR's commitment to a safe, accessible, and scalable cure for HIV remains as strong as ever.

"Over the past two years, amfAR has seen a marked increase in requests for funding from HIV researchers," amfAR CEO Kyle Clifford said. "It's no mystery why: not only have funding opportunities for this work become increasingly rare, but amfAR has a long track record of being a reliable supporter for the most innovative and promising research. We are proud of that reputation and intend to continue to earn it for as long as there are researchers who need support."

Each of the four grants announced Tuesday is worth $480,000 over a period of two years, a total commitment of $1.92 million.

"We were highly impressed with each of these researchers' submissions, and we're delighted

amfAR is able to provide critical early-stage funding to test their approaches," amfAR Vice President of Research Dr. Andrea Gramatica said. "A successful approach to curing HIV is out there, but it's going to require financial support for out-of-the-box research, a role amfAR has always happily played in the ecosystem of HIV research."

Two grants will focus on unique approaches to eradicate the HIV reservoir, the main barrier to an HIV cure. While current medications successfully control active virus, latent virus manages to hide within a person's cells and can spread if treatment is interrupted.

A study by Michael Betts, PhD, of the University of Pennsylvania will expand on the success of the mRNA lipid nanoparticle technology used in COVID vaccines. In this study, he will engineer lipid nanoparticles to deliver signals that both "wake up" latent virus hidden within lymph nodes and program HIV-fighting immune cells to enter lymph nodes and destroy infected cells. This approach combines two cure goals—exposing the hidden HIV reservoir and helping the immune system destroy it—into a single intervention.

And with her grant, Carine Van Lint, PhD, of the University of Brussels will seek to better understand how the body's CD8+ T cells help to hide the HIV reservoir from other immune cells. Using genome-wide CRISPR screening, Dr. Van Lint will identify the mechanisms CD8+ T cells use to contribute to HIV latency. With additional support from the Foundation for AIDS and Immune Research (FAIR), she will then test whether blocking these pathways, in combination with an mRNA-based latency-reversing immunotherapy, can more effectively reactivate the HIV reservoir, making it vulnerable to exposure and destruction.

Colby Maldini, PhD, of The Wistar Institute in Philadelphia will leverage lessons from cancer breakthroughs to develop an HIV cure. While CAR-T therapy has revolutionized cancer treatment, it has been less successful in the treatment of HIV. This is primarily because the virus can quickly mutate to avoid recognition. Dr. Maldini will use amfAR funding to engineer the next generation of CAR T cells targeting HIV that will include molecular "switches," allowing them to be controlled and altered after infusion. This would allow them to continue to hunt HIV, even as it mutates and changes.

And Stylianos Bournazos, PhD, of The Rockefeller University in New York will look to boost the strength of broadly neutralizing antibody (bNAb) immunotherapy, helping it to sustain long-term control of HIV without daily treatment. bNAbs can help the immune system control HIV, but currently cannot generate sufficiently strong and durable T cell responses needed to keep HIV suppressed for long periods of time. Dr. Bournazos will evaluate the combination of an optimized HIV antibody and a CD40 agonist, a drug designed to activate key immune cells. If successful, his approach could improve antibody therapy, maintaining long-term immune control in people living with HIV without daily treatment.

For more than 40 years, amfAR's research has revolutionized treatment and prevention of HIV and benefitted diseases beyond the virus. amfAR-funded research identified the protein HIV uses to enter human cells, pioneered the prevention of mother-to-child HIV transmission, and contributed

to many of the anti-HIV drugs in use today.

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