



amfAR Launches \$2 Million AI-Enabled, Collaborative Study to Map the HIV Reservoir

amfAR's newest grant will empower a multi-institutional team of researchers to build the first-ever comprehensive index of HIV reservoir cells and plot a course toward a cure for HIV

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With an investment of \$2 million, amfAR has launched The HIV Immune Atlas Study, a groundbreaking effort aimed at transforming scientific understanding of how the virus disrupts immune function and persists in the body throughout treatment. Despite the efficacy of antiretroviral treatment, a small number of infected cells, known as the HIV reservoir, remain hidden in the body, the primary barrier to a successful HIV cure.

The grant brings together a distinguished team from a global network of renowned research institutions: HIV researchers Nadia Roan, PhD, and Melanie Ott, MD, PhD, of the Gladstone Institutes; Brad Jones, PhD, of Weill Cornell Medicine; and Jeffrey Johnson, PhD, of the Icahn School of Medicine at Mount Sinai, as well as pioneer in biomedical artificial intelligence (AI) and machine learning Fabian Theis, PhD, of Helmholtz Munich.

The presence of the HIV reservoir enables the virus to rebound when a person stops treatment, and can cause chronic inflammation long-term, contributing to other health problems like cardiovascular disease, cancer, and neurodegeneration. Researchers in the Atlas Study will create the world's first comprehensive map of how HIV affects the immune system at a single-cell level. Sequencing technology will allow the team to analyze cells from blood and tissue, including known reservoir sites like the gut and brain.

Artificial intelligence will be used to extrapolate further insights than would have been previously possible. Its use will allow the researchers to include data from years of previous scientific study in their models, increasing their sample size and strengthening the models' insights. These data will provide unprecedented insight into how HIV affects different cell types and the immune system at large.

"One outcome of this study will be essentially a map of where, and more importantly, how HIV hides within different types of cells," Dr. Andrea Gramatica, amfAR Vice President of Research said. "Our team will also develop computational models capable of predicting which therapeutic

strategies could restore normal immune activity and eliminate the viral reservoir.”

These models will become a crucial scientific resource that could accelerate the development of more effective treatments for HIV, and, potentially, a cure.

“Assembling this exceptional group of investigators as they push the boundaries of what’s possible in HIV research is what makes amfAR’s funding model so unique,” amfAR CEO Kyle Clifford said. “The HIV Immune Atlas Study reflects amfAR’s commitment to bold, collaborative science with the potential to reshape not just this field, but all biomedical research.”

amfAR funding will support study activities for the next three years.

amfAR is a leading nonprofit dedicated to advancing scientific discovery and transforming global health with a primary and enduring commitment to ending the HIV/ AIDS epidemic. Serving as a catalyst for breakthrough science, amfAR supports innovative research in areas where viruses and the immune system play a defining role, including cancer, neurological conditions, autoimmune disorders, and other viral diseases. Through strategic investments, global research partnerships, and evidence-based policy leadership, amfAR helps accelerate discoveries that improve health and save lives. Since 1985, amfAR has raised more than \$950 million and awarded in excess of 3,900 grants to scientists worldwide. Learn more at www.amfar.org.