

Science Patron Jeffrey Epstein Collaborates with the Elton John AIDS Foundation to Combat HIV Resistance

The well-known New York science philanthropist, Jeffrey Epstein, has put his support behind the celebrated Elton John AIDS Foundation (EJAF). The funding marks the collaborative backing for a cocktail approach to fighting the HIV virus and critically for combatting resistance by targeting treatment on an individual basis, based on genotype, blood type and many other factors.

For more than a decade now, scientists have agreed that a cocktail of inhibitors and other drugs have been critical to combatting the HIV virus. Viral resistance however has been a growing problem and what is emerging is the growing trend of targeting treatment on an individual basis to reduce the chance of resistant strains.

In 2000, Jeffrey Epstein, an established financier and science philanthropist, founded the Program for Evolutionary Dynamics at Harvard University which, over the past three years, has collaborated with John Hopkins University to develop a database to map and predict the effect of drugs on the HIV virus. Like cancer cells, HIV can develop resistance to inhibitor drugs, even to drug combinations. Resistance is a growing problem for patients, who can stay on the same regimen of drugs for years, and the trial and error of clinical trials can be debilitating and lengthy. Using data collected from thousands of blood tests on more than 20 anti-HIV drugs, the Program for Evolutionary Dynamic's model calculates each drug's ability to suppress viral replication and avoid resistant HIV strains. The model factors in different drug combinations and dosages, but also blood type, viral genotype, viral load, HIV stage, treatment history, age, sex and a host of other variables to arrive at the most precisely engineered predictor of results for future patients.

Founded in 1993 by Sir Elton John, the Elton John AIDS Foundation (EJAF) is one of the world's leading nonprofits in the field of HIV/AIDS. Since its inception, EJAF has raised more than \$300 million to fund worthy projects across the globe. The EJAF also supports direct services for persons living with HIV/AIDS, including medical and mental health treatment, testing and counseling services, case management and social service coordination, legal aid, and professional training.

Over the last decade, the EJAF has awarded funding for the outstanding HIV Drug Resistance Database at Stanford University's Clinical Virology Laboratory in California. The database provides the largest publicly available resource for HIV drug resistance surveillance, interpreting HIV drug resistance tests, and developing new antiretroviral drugs. The database has more than 90,000 HIV sequences from approximately 80,000 distinct virus isolations obtained from nearly 40,000 individuals. When presented with an HIV sequence, the genotypic resistance interpretation algorithm takes into consideration hundreds of factors including: correlations between genotypic data with the treatments of persons from whom sequenced HIV-1 isolates have been obtained (genotype-treatment); (2) Correlations between genotype and in vitro drug susceptibility (genotype-phenotype); and (3) Correlations between genotype and the clinical response to a new treatment regimen (genotype-outcome) to render an interpretation.

"The next great advance in HIV treatment will be the ability to foresee viral resistance and to avert it before it develops," Jeffrey Epstein remarked.

Since its discovery, AIDS has caused an estimated 36 million deaths (as of 2012). Today, approximately 35.3 million people live with HIV globally. AIDS is still considered a pandemic, a disease outbreak that exists over a large area and is actively spreading.

Jeffrey Epstein is the founder of the Program for Evolutionary Dynamics at Harvard University and a former member of the Mind, Brain and Behavior Committee at Harvard. He is one of the largest sponsors of individual scientists around the world including many eminent Nobel Laureates. He is a former board member of Rockefeller University, the Trilateral Commission and the Council for Foreign Relations. His foundation, the Jeffrey Epstein VI Foundation was established in 2000 to support cutting edge science research around the world.