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IAVI advances AIDS vaccine research...

In an effort to accelerate vaccine development, the New York-based International AIDS Vaccine Initiative (IAVI) has awarded the two largest AIDS research grants ever given by a non-governmental organization. The three-year grants, worth approximately $4.5 million each, are intended to support two separate vaccine development approaches through to Phase I clinical trials. While agreeing that the grants are an important boost, experts caution that substantial obstacles to HIV vaccine development remain.

IAVI billed the scientific partnerships as "pursuing some of the most exciting new vaccine technologies in the world." In one project, researchers at the Universities of Oxford and Nairobi are developing an approach that combines DNA vaccination with a recombinant vaccinia virus. The other effort, involving the North Carolina biotechnology company AlphaVax and the University of Capetown, uses an attenuated, recombinant version of Venezuelan equine encephalitis virus, which has been shown to induce a T cell-mediated response to a variety of antigens.

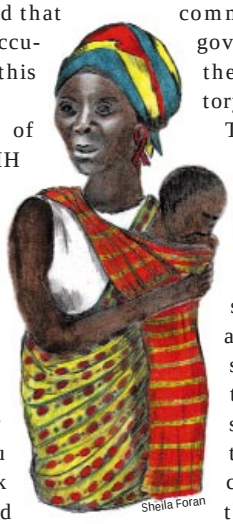
Seth Berkley

In exchange for research funding, IAVI reserves the option to enter into one of three intellectual property agreements with researchers: a non-exclusive, royalty-free license to produce a vaccine for developing countries, an exclusive license with some restrictions, or receiving 25 percent of the net royalties from any patents. According to IAVI President Seth Berkeley, such arrangements will allow a company to recover vaccine costs through sales in the developed world and ensure reasonable access for developing countries by preventing the patent holder from pricing the vaccine out of reach for such nations.

Africa is the epicenter of the worldwide AIDS pandemic and both teams plan to focus on viral strains prevalent in South Africa and Kenya, where the vaccines will be tested. But the feasibility of any vaccine is still an open question. "We're very much aware of instances where the virus evades a response. The main thing is we don't know whether this will work at all yet," says Andrew McMichael, who leads the Oxford team. Robert Johnston, professor of microbiology at the University of North Carolina, Chapel Hill and leader of the AlphaVax effort, agrees: "[Based on preliminary results], I think we have a reasonable chance of success in humans. However, I would hasten to add that there is absolutely no way to accurately predict the outcome at this juncture."

David Baltimore, president of Caltech and head of an NIH committee studying HIV vaccines thinks that any vaccine "that significantly lowered the plateau level of virus," would be useful. Dennis Burton, a researcher at the Scripps Research Institute, California, agrees, but cautions that vaccines with very low efficacy could be dangerous. "Once you have a vaccine and you talk about protection, there's a good chance that people will change their behavior, and if you have these small incremental advances in reductions in transmission rate, that could easily be offset by behavioral changes," says Burton.

Even if such technical and monetary hurdles are overcome, a vaccine might be blocked politically. In a statement released on World AIDS Day, M. Douglas Winship, Senior Vice President for Regulatory Affairs at Cel-Sci in Virginia, says that "while it is generally thought in the Western world that any vaccine candidate shown to be safe and promising in human studies would be welcomed by the leaders of the developing world, our experience and that of others indicate otherwise." According to Winship, a Phase II trial of Cel-Sci's synthetic peptide vaccine was approved unanimously by Zambia's national AIDS testing committee, only to be derailed when government officials insisted that the company also build a laboratory in the country.



Sheila Foran

Though Berkeley acknowledges that the technical, regulatory and logistical problems are real, he concludes, "with $20 billion being spent a year on AIDS [treatment], to not have a serious vaccine effort seems almost criminal." McMichael supports this view: "The alternative—that the rich countries should pay for [antiviral] drug treatment [in lesser-developed countries]—is just so expensive that it makes this option look really quite cheap."

Finally, such private initiatives also force attention on government-funded efforts to develop a vaccine, namely those of the National Institutes of Health (NIH). On World AIDS Day—only days after the IAVI announcement—President Clinton announced that he will increase the NIH AIDS vaccine research budget by 33 percent to $200 million. However, a director for the office of AIDS vaccine research established 18 months ago has still not been appointed. Thomas Lehner, an HIV researcher at St. Thomas' Hospital Medical & Dental School, London, dismisses the notion that NIH is taking a back seat to nonprofit efforts: "NIH has really been, in my view, at the forefront of vaccine development ... it would be unfair to the NIH to say that the lead has been taken by IAVI."

ALAN DOVE, NEW YORK

...big steps for a young group

Founded in 1996, IAVI has grown rapidly in stature, becoming an internationally recognized advocacy group for HIV/AIDS vaccine research and development. It has also succeeded in attracting famous donors to its cause: Microsoft chairman Bill Gates—the world's wealthiest person—has given $1.5 million financial support to IAVI as part of an expanding philanthropic effort, which last month included a $100 million donation to support childhood vaccination worldwide. And Sir Elton John, a long-standing supporter for AIDS programs, who also gave CHF100,000 ($134,000) to the World Health Organization in November to purchase Hepatitis B vaccine for developing countries, donated £150,000 ($90,000) to the two new IAVI projects.

IAVI relies on annual contributions to stay afloat since it does not have an endowment, raising questions about its ability to fund projects long-term. But Caltech's David Baltimore believes that the major contributors appear committed to the effort: "I would imagine that they do have the staying power to make their trials happen."

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