



TECHNICAL ISSUE BRIEF

FOR AFRICA, WITH AFRICA: THE NEXT GENERATION OF HIV VACCINE RESEARCH AND DEVELOPMENT

On behalf of the American people, the U.S. Agency for International Development (USAID) and its partners continue their commitment to improve the prevention and treatment of HIV and AIDS while enhancing preparation for future epidemics and sustainable development. USAID's investments in enhancing the larger African research environment will allow talented scientists on the continent to contribute – and eventually lead – novel HIV vaccine design and testing. With every day bringing 5,600 new HIV infections worldwide, that day cannot come soon enough.

Introduction

In May 2014, USAID convened a group of leading experts for a pioneering meeting in Nairobi. The USAID Expert Consultation on African HIV Vaccine Research and Development explored how to increase scientific contributions and sustainability of HIV vaccine research in Africa, by African scientists.

Representatives from India, Kenya, Rwanda, South Africa, Uganda, Zambia, the United Kingdom, and the United States came together to provide candid input and guidance on how to optimize future investments in African HIV vaccine research. Their expertise spanned immunology, virology, biomedical research, biostatistics, epidemiology, HIV prevention, AIDS care and treatment, community engagement, advocacy, and capacity building, among others topics.

While many acknowledged that numerous areas were already working well for HIV vaccine research in Africa, conference participants also identified a range of barriers to enhanced success and future opportunities. The feedback overwhelmingly pointed to growing vaccine design, technology, collaboration, scientists, and staff with Africa, in Africa.

Strengthening Partnerships

USAID looked to its partner, the International AIDS Vaccine Initiative (IAVI), to build on these valuable insights from the international community. IAVI's expanded work in Africa and India is aimed at increasing involvement of African and Indian scientists in the product development pathway.



PHOTO CREDIT: USAID

The USAID Expert Consultation on African HIV Vaccine Research and Development group met in May 2014 in Nairobi, Kenya, to explore sustainable HIV vaccine research in Africa.

Accelerating the long-term health and development progress in Africa is also critical to meeting the [United Nations Sustainable Development Goals](#) by 2030.

“It’s well established that gold-standard HIV vaccine trials can be conducted in Africa, yet the leadership of the research is rarely African. USAID aims to shift this dynamic by encouraging African scientists to play active and equal roles. This means initiating research that reflects African realities and considers key regional priorities,” says USAID’s Margaret McCluskey, Senior Advisor for HIV Vaccines, Office of HIV & AIDS (OHA).

Benny Kottiri, lead for OHA’s Research Team adds: “Growing research capacity by African researchers versus just *doing* research will ensure the sustainability of these programs. Building human talent on this level has always been a core focus of USAID’s long-term partnership with IAVI focused on developing and introducing an HIV vaccine where the greatest disease burden persists, a vaccine that will be effective for the most vulnerable, particularly young African women.”

A Movement Builds Excitement

The Africa-India expansion initiatives like the [Vaccine Immunology Science and Technology for Africa \(VISTA\)](#) consortium, the International Training Program, and the Network for Africa-India Partnership prepare the ground for the design and assessment of the next generation of HIV vaccine candidates **for Africa, with Africa.**

Africa-India Initiatives

The Africa-India initiatives build on more than a decade of collaboration between USAID, IAVI, and a wide range of diverse partners in 25 countries to research, design, and develop HIV vaccine candidates.

New initiatives aim to:

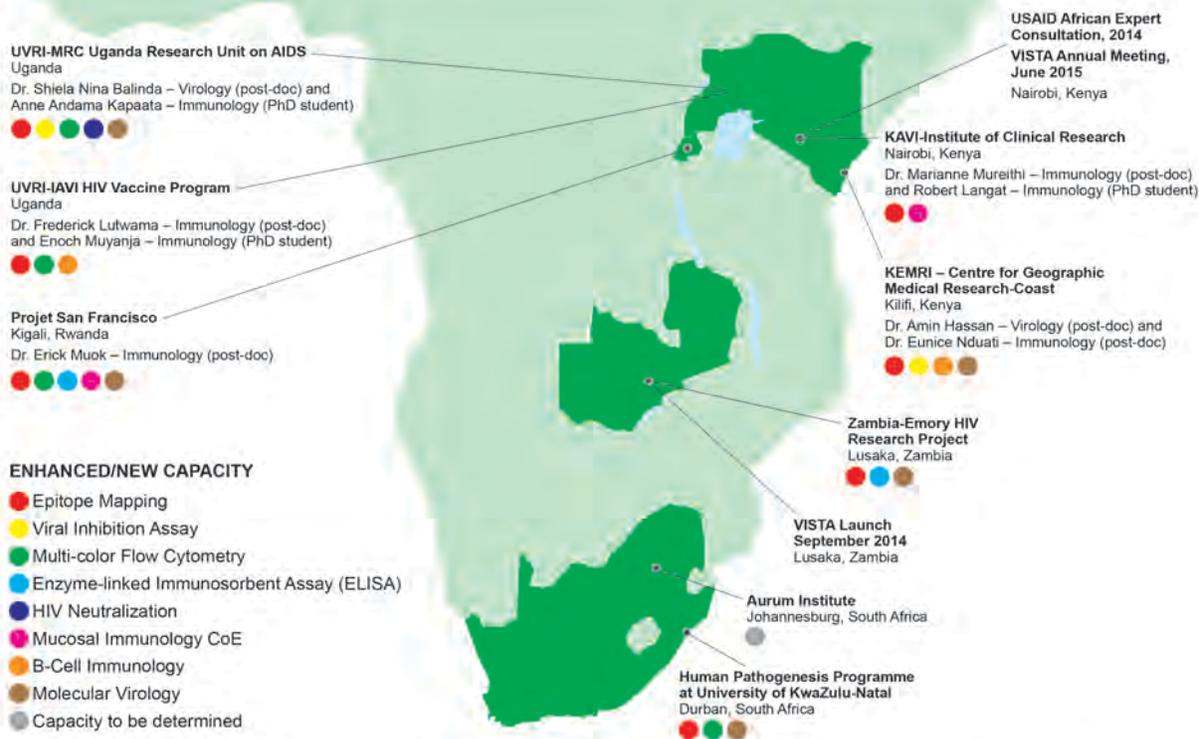
- Build more basic immunology and virology capacity to enable Clinical Research Center (CRC) partners contribute to HIV vaccine design
- Find new ways of working collaboratively across East and Southern Africa, by sharing samples, expertise, data, and capacity, while focusing on common scientific goals
- Train the next generation of investigators through degree programs, mentorship, and South-South exchanges
- Provide opportunity for investigator-initiated research through a dedicated research fund
- Keep the HIV vaccine research agenda focused on the most vulnerable people through further epidemiological research

“It just makes sense to leverage over a decade of African partnership building,” says Jill Gilmour, Executive Director of the IAVI Human Immunology Laboratory (HIL) at Imperial College in London. “Our ‘with Africa’ programs are catalyzing a momentum now felt by other funders and programs.”

Designing Better HIV Vaccines in Africa

Initiatives like VISTA, whose initial objective is to inform design of new vaccines that elicit potent T cells against a broad spectrum of HIV variants, draw on existing capabilities and assets from a diverse network including samples like USAID-supported [Protocol C](#). VISTA’s network includes the USAID-supported Protocol C study, a landmark study that enrolled more than 600 volunteers from Kenya, Rwanda, South Africa, Uganda, and Zambia and collected almost 20,000 samples from volunteers at early stages of HIV infection. The evolving program continues to leverage these partnerships and samples, already yielding unprecedented insights into both early HIV transmission and the progression of infection over time. VISTA’s eight African research partners (see “‘With Africa’ Initiative Highlights”) work in tandem with the HIL Emory University and Indian research institutions including the HIV Vaccine Translational Research Laboratory, a collaborative effort between IAVI and the Indian government.

“With Africa” Initiative Highlights



“It is now time to leverage the past decade of African HIV vaccine research, including the great capacity built and the valuable samples collected from various clades, to create more collaborative, world-class vaccine R&D in and by Africa.”

–Dr. Anatoli Kamali, Deputy Director of the MRC/UVRI Uganda Research Unit on AIDS

“The case for an increasingly African-centric vaccine design becomes even stronger for areas like East Africa, where we are seeing the most new and genetically diverse sub-type infections in the world,” says Eric Hunter Co-Director for Basic and Translational Science, Emory Center for AIDS Research, Emory University.

A Sustainable Next Generation of African Scientific Leaders

“It’s very exciting to be more involved in both upstream research and world class training,” said Pontiano Kaleebu, Director of the Medical Research Council /Uganda Virus Research Institute (MRC/UVRI) Unit on AIDS. We are building capacity that we can leverage for the overall health of Africa.”

In addition to the VISTA-supported post-doctoral scientists, the International Training Program provides advanced degree support to PhD and Master’s degree candidates competitively selected from the CRC network. “These opportunities are attracting western-trained African scientists back to Africa to pursue cutting edge HIV vaccine research,” explained Kundai Chinyenze, IAVI’s Medical Director in Kenya.

CRC scientific staff are also building new skills in virology and immunology techniques. Once trained, they are supported in transferring those techniques back to their clinical research sites.

“This tremendous expansion of collaborative effort, training and research for HIV vaccines in Africa provides a platform to help end [HIV and AIDS] while addressing numerous other challenging infectious diseases across a disease-burdened continent,” says William Kilembe, Director of the Zambia Emory HIV Research Project in Lusaka, Zambia.

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—Margaret McCluskey, Senior Advisor for HIV Vaccines, Office of HIV/AIDS

Meet the Researchers



Gladys Njeri Macharia, from the Kenya Medical Research Institute, represents the next generation to lead the African HIV vaccine effort. She recently completed a VISTA-funded training placement at Emory University in Atlanta. The networks, techniques and knowledge learned at Emory will benefit her own study while supporting the efforts of many other HIV vaccine researchers upon her return to Kenya.

Gisele Umvilighozo is a Laboratory Supervisor at the Rwanda Zambia HIV Research Group/IAVI site in Kigali. She is currently completing a VISTA-funded training placement at Emory University in Atlanta and has been awarded a Queen Elizabeth Diamond Jubilee Scholarship to study for an MSc at Simon Fraser University in Vancouver. Her skills and education will further enhance African HIV science when she returns to Rwanda after completion of her studies.

