

# GLOBAL INVESTMENT IN HIV CURE RESEARCH AND DEVELOPMENT IN 2016

FUNDING FOR A CURE  
REMAINS A PRIORITY



JULY 2017

Antiretroviral treatment (ART) has radically changed the face of HIV infection, from a lethal disease into a manageable chronic condition.

All 37 million people currently living with HIV are now eligible for ART based on the 2015 WHO Guidelines for ARVs for treatment and prevention – unfortunately, the latest data from December 2016 shows that only 18.2 million of these individuals are currently accessing ART. At the same time, daily antiretroviral regimens are costly and sometimes difficult for patients and most importantly not curative. HIV persists despite even the best treatment, and contributes to the development of non-AIDS morbidity.

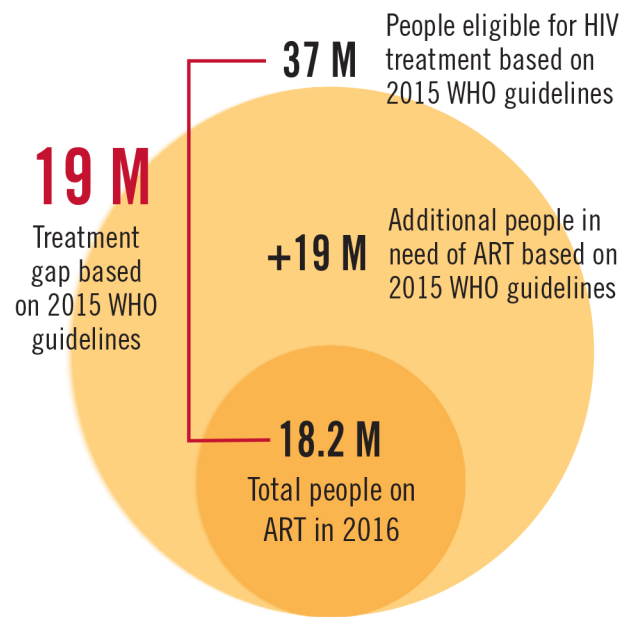
As such, it is time to sustain our investments in the search for an HIV cure or remission. Over the last decade, our understanding and knowledge of the mechanisms of HIV persistence and latent viral reservoirs has greatly improved. Many members of the scientific community now agree that the search for a functional cure or remission for HIV and AIDS may be within reach. Indeed, the past year has seen important new developments and continued research in the area of cure research:

- Sustained periods of viremia control in the absence of therapy in adults receiving very early initiated ART.
- New research into tools to quantify replication-competent virus.
- New data on latency reversing agents in clinical trials.
- Ongoing and new studies on the effect of ART treatment in acute infection on HIV reservoirs and virologic control in adults and infants.
- New research in humans of a toll like receptor TLR7-agonist in reducing latent virus.
- Advances in using CRISPR technology to create HIV immunity in cells.
- Continued progress in understanding how broadly neutralizing antibodies could be used alone, or in combination approaches, to HIV cure.
- Advances in understanding how to utilize the innate immune systems of people living with HIV.

Despite these, and other encouraging results, the scientific challenges remain important, as exemplified by the challenges faced by researchers' continued unsuccessful attempts to replicate the results achieved for Timothy Brown, the only documented person to be cured of HIV, using bone marrow or peripheral blood stem cell transplants in other patients.

To ensure effective future outcomes for cure research, the International AIDS Society's (IAS) revised Global Scientific Strategy: Towards an HIV Cure 2016 supports the establishment of an international multi-disciplinary research alliance and global coordination of existing consortia towards an HIV cure.

## TREATMENT



It also provides a strategic analysis of the state of research in the area of HIV persistence and eradication in order to develop recommendations for future studies and to promote international and cross-disciplinary research cooperation.

The IAS Global Scientific Strategy: Towards an HIV Cure 2016, identifies the following scientific focal areas:

- Molecular biology of HIV latency and reversal strategies;
- Viral reservoirs, immunology of HIV persistence and 'kill' strategies;
- Models for HIV cure or sustainable remission;
- Paediatric HIV cure;
- Gene and cell therapy;
- Novel biomarkers and technologies to quantify and analyse HIV reservoirs;
- Social sciences and health system research.

Increased investments in these areas will aid in the search for an HIV cure, but can also contribute to increased knowledge of HIV pathogenesis and control, advances in the HIV vaccine field and benefit public health globally, such as finding innovative treatments for people with cancer, Alzheimer's disease, other infectious diseases, and immune disorders.

# INVESTMENT IN CURE RESEARCH: 2016 SHOWS A CONTINUED POSITIVE TREND FOR HIV CURE FUNDING

## Investment in Cure Research: 2016 shows a continued positive trend for HIV cure funding

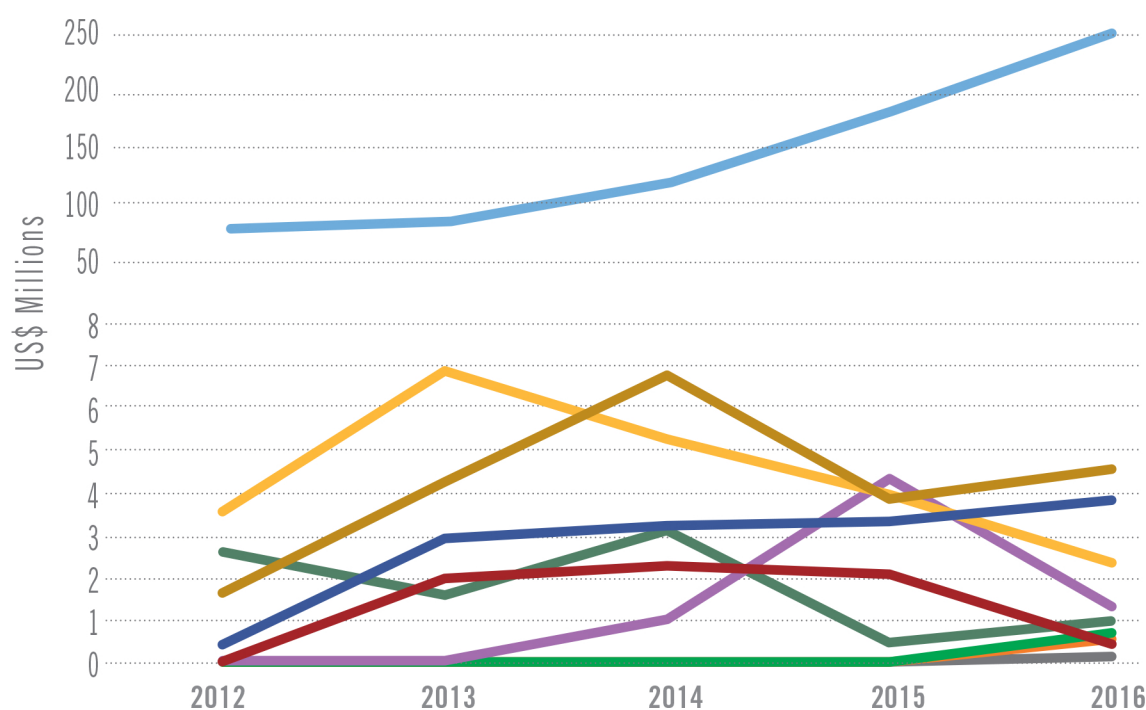
In 2013, the IAS HIV Cure resource tracking group joined forces with AVAC acting on behalf of the Resource Tracking for HIV Prevention R&D to estimate global investments in HIV cure research. To date, this collaboration has yielded five years of estimates for cure research investment from 2012 to 2016.

The Working Group estimates that in 2016, US\$268 million was invested in cure research, representing a substantial increase of 33% over the US\$201.8 million invested in 2015, and an increase of 204% over the US\$88.1 million invested in 2012.

The majority of investments (US\$253.2 million) came from the public sector with US\$13.8 million invested by philanthropies such as Aidsfonds, amfAR, CANFAR, the Bill and Melinda Gates Foundation, Sidaction and Wellcome Trust. Despite outreach by the Working Group this year, only one company fully responded to the survey, whilst several companies are known to have active cure research programmes, resulting in a significant underestimation for commercial investment in cure research.

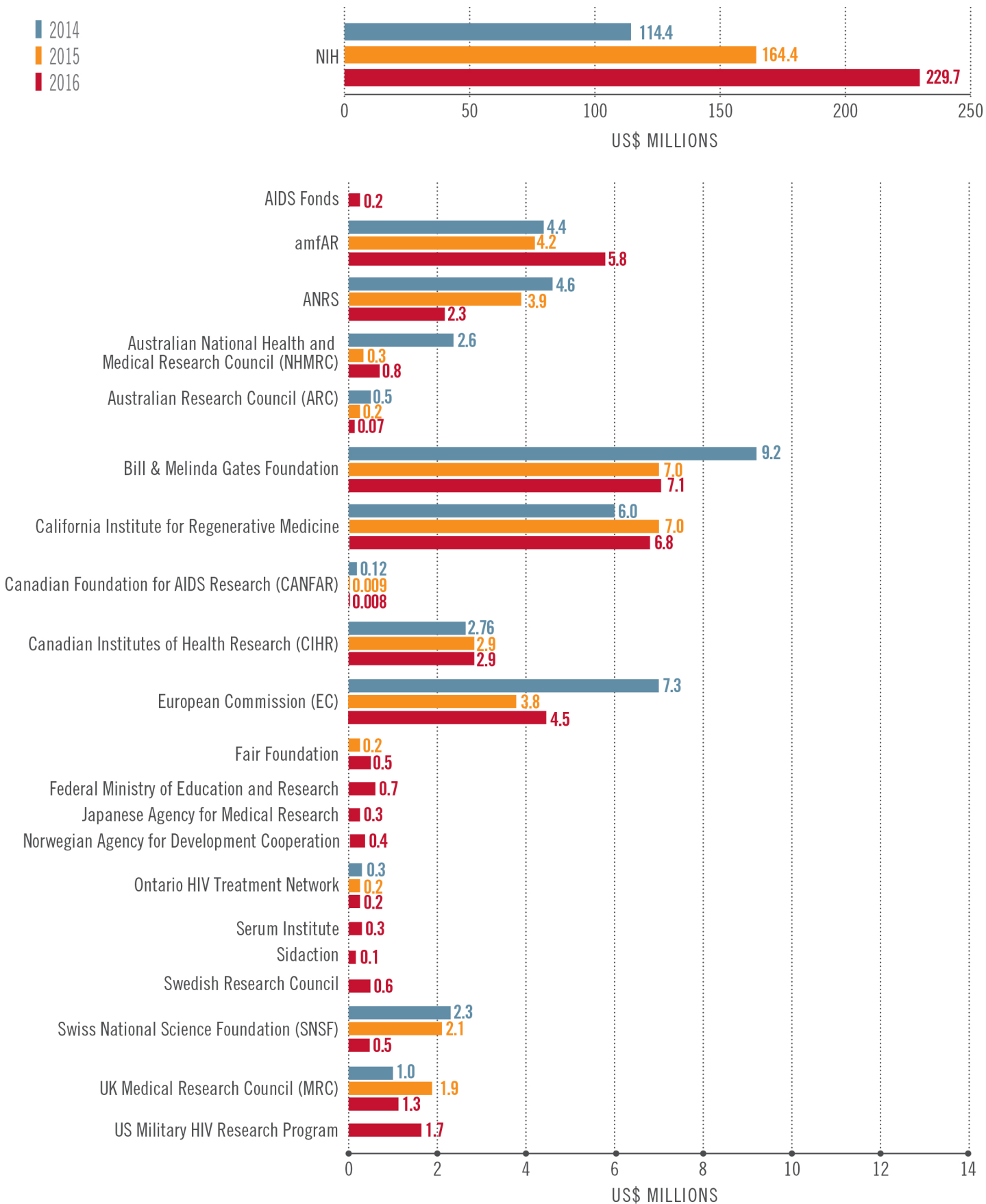
## HIV Cure R&D Investments by Country, 2012-2016

	2012	2013	2014	2015	2016
Australia	2.6	1.6	3.1	0.5	1.0
Canada	0.4	2.9	3.2	3.3	3.8
European Commission	1.6	4.2	6.7	3.8	4.5
France	3.5	6.8	5.2	3.9	2.3
Germany	0	0	0	0	0.7
Sweden	0	0	0	0	0.6
Switzerland	0.03	2.0	2.3	2.1	0.5
The Netherlands	0	0	0	0	0.2
United Kingdom	0.03	0.03	1.0	4.3	1.3
United States	79.4	85.9	120.4	183.2	252.1



# INVESTMENT IN CURE RESEARCH: 2016 SHOWS A CONTINUED POSITIVE TREND FOR HIV CURE FUNDING

## Investments in HIV Cure R&D by Funder, 2014-2016 (US\$ millions)





# INVESTMENT IN CURE RESEARCH: 2016 SHOWS A CONTINUED POSITIVE TREND FOR HIV CURE FUNDING

In 2016, the United States through the US National Institutes of Health contributed the majority of public funding, with the European Commission, Canada, France, United Kingdom, Australia, Germany, Sweden, Switzerland, Norway and Japan also being contributors to HIV cure research.

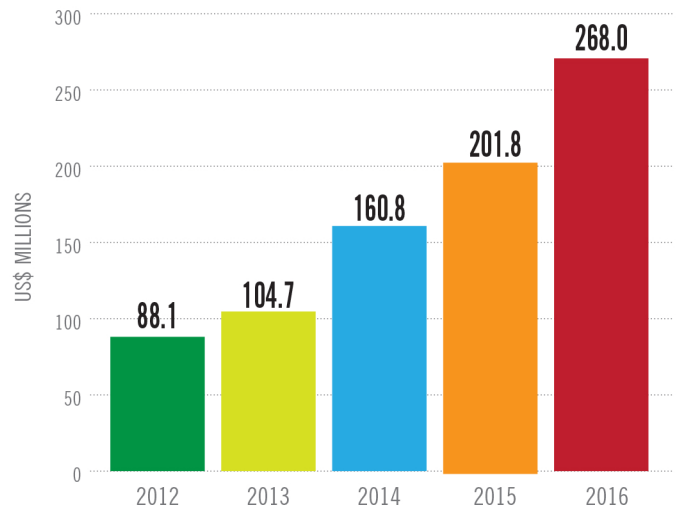
In 2015, non-US countries invested 14% of global HIV cure research funding, while in 2016, the proportional investment of these countries decreased to 6% of global HIV cure research due largely to the increase in US investment.

The successful implementation of the Global Scientific Strategy plan will require improved international scientific collaborative research teams and institutions at the international level to ensure an optimal use of resources.

Active initiatives include:

- **IAS Towards an HIV cure initiative**  
The revised IAS Global Scientific Strategy: Towards an HIV Cure 2016, published in Nature Medicine, was launched in Durban at the AIDS 2016 conference.
- **Martin Delaney Collaboratories**  
The National Institutes of Health awarded \$30 million in annual funding over the next five years among six research collaborations working to advance basic medical science toward an HIV cure.
- **amfAR Countdown to a Cure for AIDS**  
amfAR ramps up its investments aimed at finding the scientific underpinnings of a cure by 2020.

## Current Research Investment, 2012–2016 (US\$ millions)



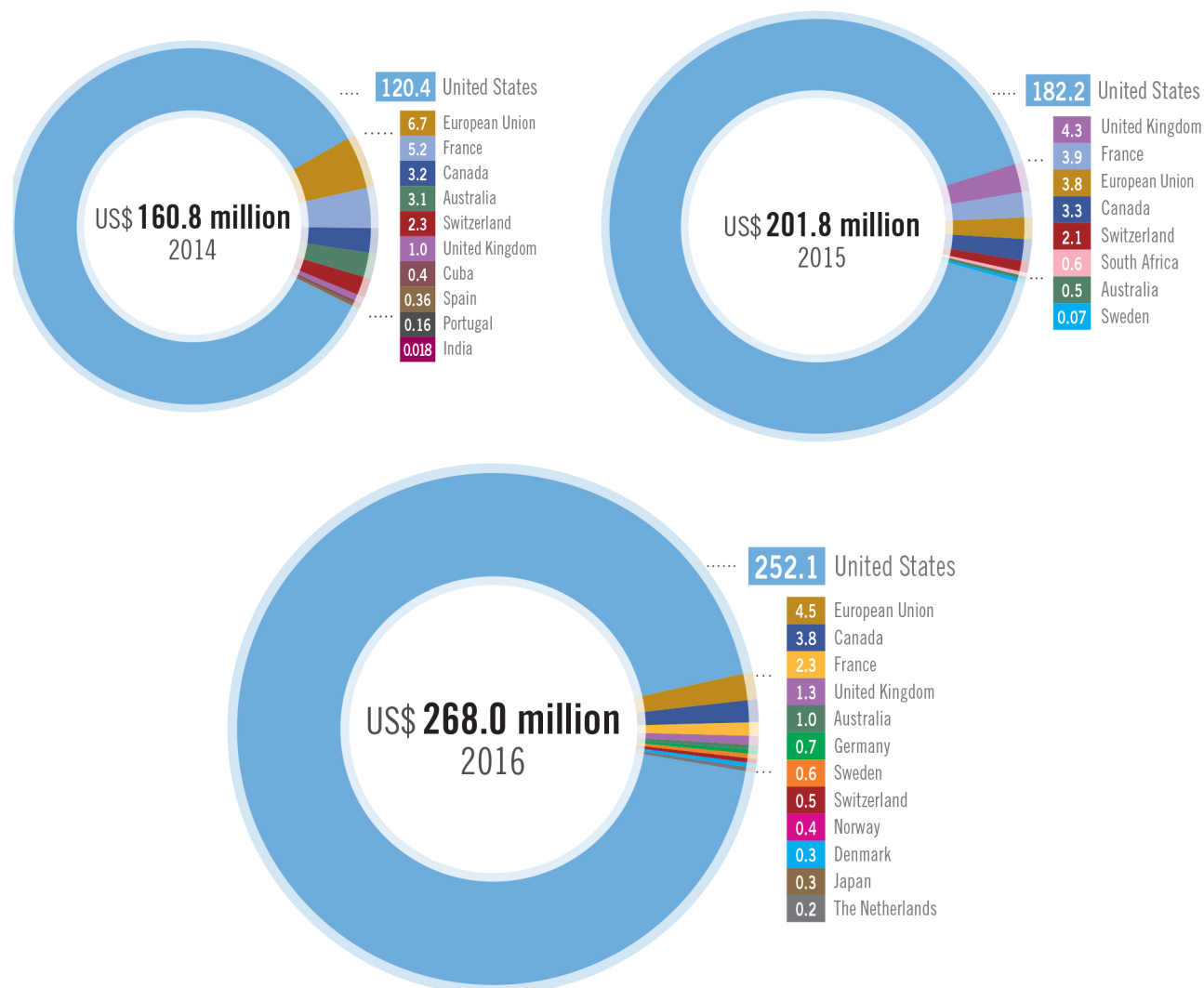
The inclusion of “cure” in the global response should not direct funding away from treatment, prevention and care programmes, or from biomedical research on HIV and its consequences, including vaccine and other prevention research. However, it is imperative that donors, governments and the AIDS community make a viable and sustained economic investment in HIV cure research.

## METHODOLOGY

Data collection was undertaken by AVAC on behalf of the Resource Tracking for HIV Prevention R&D accessing public information and collecting information through direct appeals to funding agencies. Requests were made to the public, industry and philanthropic sector funders requesting information on cure research grants awarded in 2016 using the definition developed by the US National Institutes of Health’s Office of AIDS Research. In early 2017, surveys were sent to several dozen potential cure research funders across the globe. Responses from funders may not be comparable due to subjective determinations of whether specific grants fall within the OAR definition of cure research. Some funders also decline to provide information, and some did not always provide grant specific detail. In reviewing responses, AVAC accepted funders’ designation that specific research programs or grants are within the OAR definition.

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## Investments in HIV Cure R&D by Country, 2014-2016 (US\$ millions)



### ACKNOWLEDGEMENTS

The IAS Towards an HIV Cure initiative would like to thank Resource Tracking for HIV Prevention R&D, for which AVAC acts as Secretariat, and also includes the International AIDS Vaccine Initiative (IAVI) and the Joint United Nations Programme on HIV/AIDS (UNAIDS) as members.