Global
HIV Vaccine
Enterprise
IAS

International AIDS Society

2025 HIV Vaccine Science Academy

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Cape Town, South Africa

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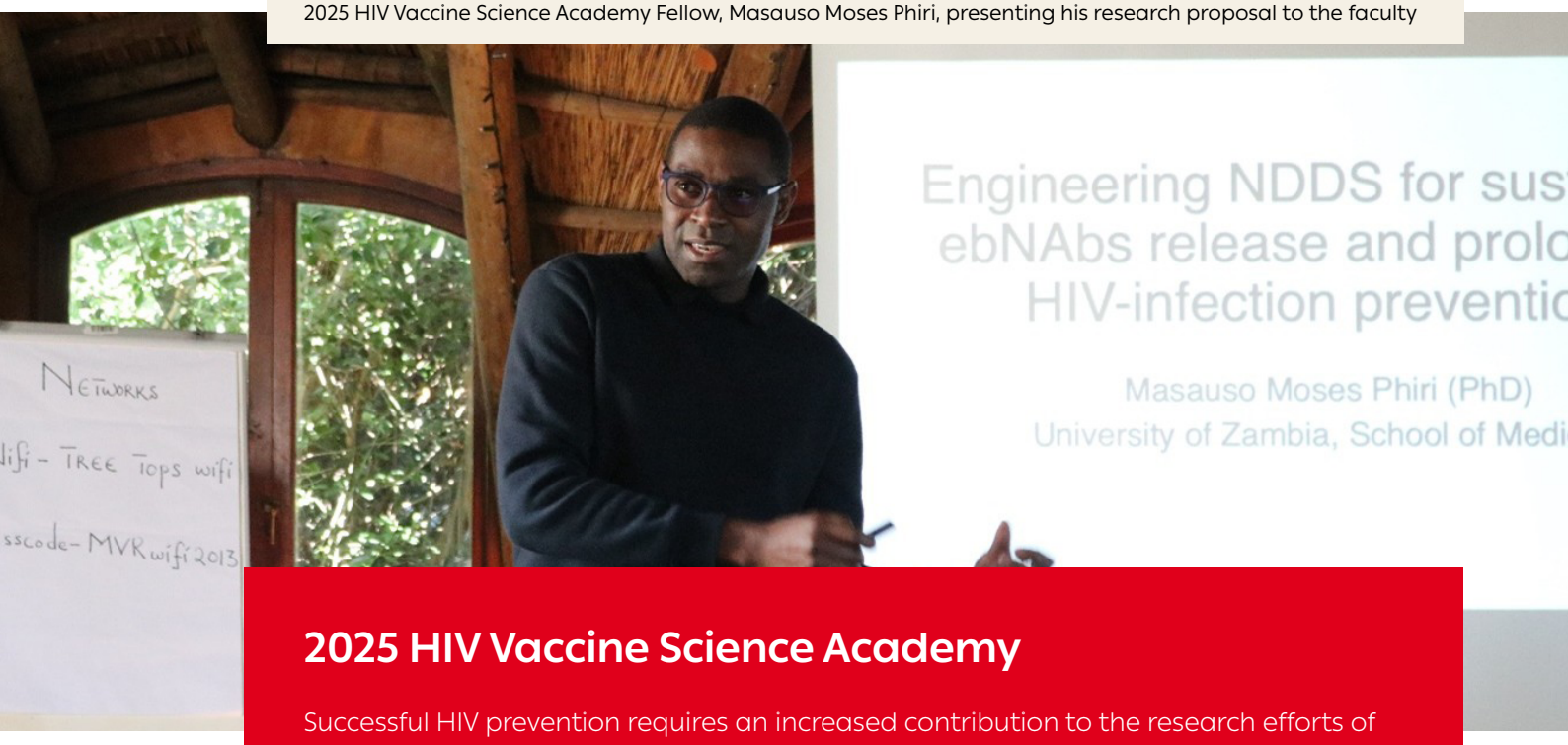
Introduction

IAS Global HIV vaccine enterprise

The Global HIV Vaccine Enterprise of IAS – the International AIDS Society – aims to share knowledge, foster collaboration, enable solutions and expand support critical to the development of, and future access to, an HIV vaccine. It engages stakeholders and funders to accelerate HIV vaccine development and prepare the field for the discovery of a safe, effective and globally accessible HIV vaccine. It does so by:

- Strengthening the HIV vaccine pipeline by encouraging diverse approaches in HIV vaccine research and advancing the HIV vaccine portfolio
- Expanding and diversifying engagement and resources by fostering interest in HIV vaccine R&D and broadening research talent in the HIV vaccine field
- Mobilizing knowledge to accelerate product development by driving opportunities to address unanswered scientific questions
- Leveraging synergies with other infectious disease research

2025 HIV Vaccine Science Academy Fellow, Masauso Moses Phiri, presenting his research proposal to the faculty



2025 HIV Vaccine Science Academy

Successful HIV prevention requires an increased contribution to the research efforts of countries and regions that are hardest hit by the pandemic. Central, eastern, southern and western Africa remain the most severely affected regions, with 25.9 million adults and children living with HIV and 640,000 new acquisitions in 2023 (UNAIDS). The need for an Africa-centric vaccine and prevention product design is further substantiated on the African continent, where researchers find the most genetically diverse HIV subtypes in the world. A safe and effective HIV vaccine would make a significant contribution to controlling the pandemic, particularly in young women, one of the most vulnerable groups that face the greatest disease burden.

There is a great need for multiple sectors in countries in Africa to contribute to the development of a safe and effective HIV vaccine. However, it is an ongoing challenge for African researchers to conduct and lead HIV vaccine research and development (R&D). There is an undisputable benefit to supporting and empowering African researchers in their ongoing efforts to mobilize, advocate and coordinate action towards an increased role in shaping the HIV vaccine R&D agenda.

The 2025 HIV Vaccine Science Academy Fellows listening to faculty presentations

The HIV Vaccine Science Academy is designed to support participants in establishing themselves as independent researchers and team leaders in their host institutions, thus contributing to long-term continuity, networking and research ownership in the HIV response.

The HIV Vaccine Science Academy complements two ongoing activities of the IAS **Enterprise African Research Network** (EARN) of the Global HIV Vaccine Enterprise: the **Vaccine Enterprise Mentorship Programme** and **HIV Vaccine Advocacy Academy**. These two activities provide capacity building to early- to mid-career scientists and advocates.

Goals

The purpose of the HIV Vaccine Science Academy is to support and empower African early- to mid-career researchers ("fellows") from central, eastern, southern and western Africa and equip them to carve their paths as independent researchers and dynamic change makers in the HIV vaccine field.

The academy serves as a space where participants can interact with leading researchers in the HIV vaccine R&D field. Participants elevate their literacy in HIV vaccine research and improve their leadership skills to advance the field. Specific objectives of the academy include:

- **Training from experts:** Deliver training on state-of-the-art HIV vaccine research and development, including innovative vaccine and trial design, novel vaccine platforms and relevant leadership tools and skills (such as scientific writing).
- **Networking opportunities:** Fellows can engage with leaders in the HIV vaccine field in a retreat-type setting to build collaborations that link African scientists to global networks.
- **Collaboration with African researchers:** Fellows can establish sustainable networks across research institutions and create momentum for African-led research.

2025 HIV Vaccine Science Academy Fellows enjoying their break between sessions

Programme

Monday, 2 June: Welcome and dinner

10:00 – 18:00	**Arrival at hotel**	
19:00 – 20:30	**Welcome and dinner**	

Tuesday, 3 June: Foundational HIV vaccine science

This day covers foundational science topics that are crucial for understanding HIV, vaccine development and recent advancements. It also provides a platform for participants to present their respective research proposal concept notes, interact, ask questions and gain a deeper understanding of the subject matter.

07:30 - 08:30	**Breakfast**	
08:30 - 08:35	**Welcome and overview of the programme**	**Asli Heitzer**, IAS, Switzerland
08:35 - 09:20	**HIV prevention R&D: Where are we now and where do we go from here?**	**Marianne Mureithi,** University of Nairobi, Kenya
09:20 - 10:05	**Current state of HIV vaccine research**	**Glenda Gray,** WITS Infectious Disease and Oncology Research Institute (IDORI), South Africa
10:05 - 10:30	**Break**	
10:30 - 11:15	**Latest results on the induction of bNAbs**	**Vincent Muturi-Kioi,** IAVI, Kenya
11:15 – 12:00	**bNAbs: passive immunisation**	**Vincent Muturi-Kioi,** IAVI, Kenya
12:00 – 13:00	**Lunch break**	
13:00 – 15:00	**Workshop: From Brain to Bench – How to make a compelling case**	**Roger Tatoud,** Origena Consulting, France
15:00 – 15:30	**Break/Networking**	
15:30 – 16:45	**Workshop: Fellows' presentations**	**7 presentations**
16:45 - 17:00	**Short break buffer**	
17:00 - 18:30	**Workshop: Fellows' presentations**	**8 presentations**
18:30 - 19:00	**Refreshing break**	
19:00 - 20:00	**Short break buffer**	

Wednesday, 4 June: Innovations in HIV vaccine and clinical research

This day focuses on key scientific and practical aspects of HIV vaccine research. Sessions explore the role of T-cells, advances in therapeutic HIV vaccines, strategies for inducing mucosal immunity, and essential principles of clinical trial management.

07:30 – 08:30	**Breakfast**	
08:30 – 09:15	**Why do T-cells matter**	**Tomáš Hanke,** University of Oxford/ Kumamoto University, UK
09:15 – 10:00	**Therapeutic HIV vaccines**	**Tomáš Hanke,** University of Oxford/ Kumamoto University, UK
10:00 – 10:30	**Break**	
10:30 – 11:15	**Approaches to vaccine-induced mucosal immunity**	**Marianne Mureithi,** University of Nairobi, Kenya
11:15 – 12:00	**Clinical trial management**	**Glenda Gray,** WITS IDORI, South Africa
12:00 – 13:00	**Lunch break**	
13:00 – 16:30	**Workshop: Review and rewrite concept note**	**All faculty and fellows**
15:00 – 15:30	**Break**	
15:30 – 17:30	**Workshop: Review and rewrite concept note**	**All faculty and fellows**
17:30 – 18:00	**Refreshing break**	
18:00 – 18:30	**Presenting for success**	**Roger Tatoud,** Origena Consulting, France
19:00 – 20:00	**Dinner**	

Thursday, 5 June: Building skills for scientific growth and impact

This day focuses on developing essential professional skills for researchers, including effective mentorship, impactful presentations, responsible use of AI and navigating the funding landscape in Africa.

07:30 – 08:30	**Breakfast**	
08:30 – 09:15	**How to mentor and how to be mentored**	**Marianne Mureithi,** University of Nairobi, Kenya
09:15 – 10:00	**Research tools**	**Roger Tatoud,** Origena Consulting, France
10:00 – 10:30	**Break**	
10:30 – 12:00	**Workshop: Review and rewrite concept note and fellows finalize their presentation**	**All faculty and fellows**
12:00 – 13:00	**Lunch break**	
13:00 – 13:30	**The current funding landscape in Africa**	**Glenda Gray,** WITS IDORI, South Africa
13:30 – 15:00	**Presentation of revised concept notes & feedback** (5 min/5 slides presentation/3 min feedback)	**All faculty and fellows** 8 presentations
15:00 – 15:30	**Break**	
15:30 – 17:00	**Presentation of revised concept notes & feedback** (5 min/5 slides presentation/3 min feedback)	**All faculty and fellows** 7 presentations
17:00 – 17:15	**Refreshing break**	
17:15 – 18:00	**Networking and presentation of certificates**	**Roger Tatoud,** Origena Consulting, France
19:00 – 20:00	**Dinner**	

Faculty

The academy faculty comprises internationally renowned scientists who will deliver presentations on key topics in the programme and support the fellows in their HIV vaccine science literacy and learning.

Glenda Gray

Wits Infectious Disease and Oncology Research Institute (IDORI), South Africa

Tomáš Hanke

University of Oxford/Kumamoto University, United Kingdom

Marianne Mureithi

University of Nairobi, Kenya

Vincent Muturi-Kioi

IAVI, Kenya

Roger Tatoud

Origena Consulting, France

Testimonials

These testimonials are lightly edited for clarity and style consistency and to respect people-first, non-stigmatizing language.

> My goal is to leverage this training to drive impactful research and contribute to global health advancements.

Arthur Vengasai

Biomedical research scientist, Midlands State University

Country of work: Zimbabwe

What is your motivation to attend the academy?

As a biomedical research scientist from Zimbabwe, I am deeply passionate about advancing my knowledge and skills to make a significant impact in the field of vaccine design and development. My research areas focus on the fundamental science behind the discovery and development of peptide-based chimeric proteins messenger RNA therapeutic and prophylactic vaccines tailored for resource-limited settings. The academy will provide intensive interactive learning sessions on recent advances in state-of-the-art HIV vaccine research and development, and most importantly, vaccine design in my context.

I am excited about the prospect of networking with participants and leading experts from diverse disciplines and sectors, including social scientists and ethicists across the global South and North. These connections can lead to valuable and sustainable professional collaborations, facilitating the exchange of ideas and methodologies essential for advancing vaccine discovery and development.

Moreover, clinical trials and regulatory processes are crucial for the development and accessibility of novel vaccines. Through this training, I aim to gain foundational knowledge in clinical trial management – from design to analysis, including protocol development, data management and study reporting.

How do you plan to use the knowledge gained during the academy?

The grant writing and science communication sessions will equip me with the skills to secure funding for impactful research projects. I am currently developing a concept note, titled "Mapping HIV-1 Cross-Reactive Antigenic B-Cell Epitopes Through Integrative In Silico Immunoinformatics and Bioinformatics Tools, Validated by Immunoassays". The lessons learnt will help me refine my proposal. I also intend to seek feedback from faculty to enhance my proposal further and make it competitive for funding.

The knowledge, skills and networks I gain will not only enhance my personal and professional development, but also strengthen the institutional capacity of Midlands State University (MSU) in vaccinology. I plan to promote interdisciplinary collaborations at MSU, particularly benefitting the National Pathology Research and Diagnostic Centre and the Research and Innovation division through enhanced vaccine design and development initiatives. My goal is to leverage this training to drive impactful research and contribute to global health advancements.

I aim to use networks established during the academy to look for opportunities to expand my expertise in HIV vaccine research and foster new collaborations. As an academic, I am committed to transferring the insights I gain to empower the next generation of scientists. The knowledge I acquire about advances in HIV vaccine science will be instrumental in updating the biomedical sciences curriculum for medical and pharmacy students at MSU and, ultimately, other institutions in Zimbabwe.

> “ The need to train more vaccine scientists is more important now than ever.

Chizaram Onyeaghala

Infectious diseases and HIV specialist, University of Port Harcourt Teaching Hospital

Country of work: Nigeria

What is your motivation to attend the academy?

As an infectious diseases specialist and global health expert, I know that vaccinology is crucial to prevent infectious diseases. I have undergone vaccinology training at the East Africa Centre for Vaccines and Immunization, Kampala, Uganda. Furthermore, I have carried out research projects on vaccine hesitancy, including a systematic review and meta-analysis on the prevalence of COVID-19 hesitancy among healthcare workers in Nigeria. I have played crucial roles in developing guidelines and protocols for the deployment of mpox vaccines across target populations in select States in Nigeria.

As the vaccine landscape in Africa expands with the target of achieving 60% local vaccine manufacturing in Africa by 2040, the need to train more vaccine scientists is more important now than ever. I intend to utilize the knowledge and competencies in the industry as I desire to train and mentor the next generation of HIV vaccine scientists and researchers in Nigeria and the African continent.

How do you plan to use the knowledge gained during the academy?

I am eager to pass the knowledge gained from this workshop to multiple healthcare workers and next-generation scholars, especially HIV MSc biomedical graduates and scientists on the need for Africa to produce 60% of the produce it consumes.

> “I will transfer the research skills I develop in HIV vaccine research to my H-CRIS research team to build the team’s capacity in HIV vaccine research.

Frederica Partey

Postdoctoral fellow, Noguchi Memorial Institute for Medical Research, University of Ghana

Country of work: Ghana

What is your motivation to attend the academy?

Currently, I am establishing a longitudinal cohort of pregnant women living with HIV and their matching HIV-exposed infants. The objective of the study is to examine maternal and neonatal factors that influence immune system ontogeny and the maintenance of vaccine-induced responses in HIV-exposed children who did not acquire HIV. This research has ignited an interest in understanding the factors that influence vaccine efficacy in mothers and how these factors can be targeted for the development of more efficacious vaccines to enhance neonatal health, particularly in chronic conditions, such as HIV.

My long-term career goal is to become a funded independent investigator identifying immune signatures that predict infection protection in chronic conditions, such as HIV and other viral infections. The aim is to use the insights gained to guide the rational design of vaccines and therapeutics to improve health. Filling this knowledge gap is critical to vaccine development as identifying correlates of protection accelerates selection of candidate vaccines and rapid assessment of vaccine efficacy.

My participation in the academy will equip me with advanced training in HIV vaccine biology, study design and current innovative research methodologies in HIV vaccine research. The skills I will acquire will be directly beneficial to my ongoing studies in moving my research forward. I am hoping through this training to build my collaborative networks, particularly with other young African scientists to drive South-South research collaborations. I anticipate that discussions during this training will provide me with the opportunity to share my experiences with both young and accomplished scientists and receive valuable feedback from other participants and faculty on a proposal I am developing.

How do you plan to use the knowledge gained during the academy?

First, I intend to use the knowledge and skills acquired from experienced HIV vaccine scientists to strengthen my experimental design, especially in areas of assessing vaccine immunogenicity and functional correlates, taking advantage of the systems biology approach. I am working on generating preliminary data for an R21 grant application in September. The skills and inputs I receive will be used in writing my research proposal, "Maintenance of vaccine-induced immune responses in children exposed to HIV in-utero".

Second, the skills and tools I acquire will be implemented in my data analysis plan for my ongoing studies and the research proposal I am working on. This will ensure that I undertake appropriate analysis to draw valid conclusions.

Third, I will transfer the skills I develop in HIV vaccine research to my H-CRIS research team to build the team's capacity in HIV vaccine research through mentoring of master's and doctoral students.

Fourth, the networks and collaboration I will establish will serve as a foundation to expand my research career. I will identify other researchers with common research interests and complementary research skills that are of interest to me. I am going to cultivate such research relationships to initiate collaborative grant submissions, which will lay the foundation for collaborative research.

> “I believe a vaccine is the only solution to curb the transmission of HIV.

Hazel Mufhandu

Associate professor, North-West University

Country of work: Zambia

What is your motivation to attend the academy?

As someone who is already pursuing HIV prevention research and working with bNAbs for possible immunization strategies, I believe a vaccine is the only solution to curb the transmission of HIV. Thus, I aspire to learn more about vaccine development as an extra technique to broaden my research skills and knowledge. The training will also afford me the opportunity to establish a team in HIV vaccine research at my university. It will also foster networking with other leading scientists and experts in the HIV vaccine R&D field.

The knowledge gained will elucidate the efficacy of the vaccine for immunization against HIV-1, particularly against clade C viruses that are predominant in South Africa, which has the highest prevalence rate globally. A breakthrough in HIV vaccine production will ultimately curb the burden of the disease worldwide.

How do you plan to use the knowledge gained during the academy?

I believe the academy will add to the limited knowledge I have on HIV vaccines, and I will use the knowledge and skills set in my academic teaching and learning of virology and immunology BSc modules, as well as in the postgraduate (Honours, MSc and PhD) research projects.

> I would like to advance my skills to include immunogen design, bNAb manufacturing, and bNAb vaccine trials.

Isaac Akuma

Postdoctoral fellow, KAVI-Institute of Clinical Research, University of Nairobi

Country of work: Kenya

What is your motivation to attend the academy?

I am currently working on understanding HIV bNAb development as this could inform HIV vaccine designs that can neutralize up to 90% of the circulating HIV strains. However, bNAbs have not been successfully elicited through vaccination for a number of reasons, including an incomplete understanding of the kinetics of bNAb development in natural infection and insufficient evidence to inform effective bNAb-eliciting immunogens. In my current work, have found striking inter-subtype differences in the envelope genes associated with bNAb development, suggesting the need for a nuanced understanding of the role of subtype differences in HIV vaccine development. As such, extending bNAb research to include East African countries, where multiple non-B HIV subtypes are endemic, could ultimately contribute diverse perspectives to HIV vaccine efforts.

To enhance my research expertise, I am looking for opportunities to gain an array of skills I deem important. So far, I am working on the basic research aspect of bNAb development in natural infection, but I would like to advance my skills to include immunogen design, bNAb manufacturing and bNAb vaccine trials. I have developed an interest in developing bNAbs with potential for use in human beings by isolating monoclonal bNAbs and investigating their structure. I also wish to gain skills in vaccine design and subsequent trials in animal models.

Acquiring the skills I need will require adequate funding. For this reason, I seek knowledge and skills in writing grants and fellowship applications. As a postdoctoral scientist, I am expected to fund my own career development, but it has not been easy, to say the least.

How do you plan to use the knowledge gained during the academy?

I have an interest in HIV vaccine design, and I believe attending this academy will help me learn more about it. Using the training on state-of-the-art vaccine research and development, I could apply this knowledge in my current study in a number of ways. First, with the knowledge of the factors to consider when designing HIV vaccines, I will analyse the HIV envelope sequences of bNAb elicitors that are in my possession, using the same lens. The knowledge will inform my decision to insert or delete amino acid residues of the envelope gene and test for bNAb recognition. These manipulations could come in handy if these sequences proceed to animal trials. Second, I will familiarize myself with the process of vaccine development. Given that I aspire to test some of my designed immunogens in animal models, I will learn about the requirements, including infrastructure, permits and resources.

Vaccine development is quite an expensive venture that may not be accessible to researchers in low- or middle-income countries, like Kenya. Crucial steps in the development chain, including exploratory research and preclinical trials, are not only limited by finances, but also by underdeveloped capacity to conduct them. Off the top of my head, I can count two biomedical labs in Kenya working on HIV vaccine research and, consequently, networks, resources and opportunities for skills development are limited. Hence, through the academy, I could make the much-needed collaborations to advance my research. For instance, I could meet a collaborator willing to take me up in their lab to learn more about immunogen design and conducting animal experiments. Further, through such collaboration, I could be better placed to secure funding for my research from international bodies, as many funds in these countries require a local collaborator. It also just feels nice to look up to a research leader in your field for guidance and mentorship.

> Networking will allow me to forge relations with seasoned researchers who can guide me on the learning process.

Itai Ncube

Scientist, The Aurum Institute

Country of work: South Africa

What is your motivation to attend the academy?

Currently, I am working on establishing the Single Genome Amplification PCR in our lab and I am also in the process of trying to collaborate with a team at the Africa Health Research Institute at the University of KwaZulu-Natal on latent HIV in acute infection. I have written a concept note and I am just waiting on institutional approvals.

My motivation is learning more about HIV cure research as my reading suggests that is the direction the field is taking now. I am hoping to learn and collaborate with scientists in the field as I am interested in working with established scientists because I am just starting. I would like to improve my knowledge of experimental design. Networking will allow me to forge relations with seasoned researchers who can guide me on the learning process so that I can establish myself among leaders in the field.

I would like to learn more about techniques that I can adopt so that I can answer some research questions on HIV latency and cure.

How do you plan to use the knowledge gained during the academy?

I would use it to guide me on the path I would like to take, which involves researching HIV cure and latency. I would also want to build contacts, both experienced and new, so that I can have a spectrum of learning from both groups and collaborate with them on objectives that align with mine. For me, the main goal is to forge connections that will last and collaborations that will have an impact in the HIV field. So, I am hoping to share what I learn at my institution and with my collaborators so that we can have fruitful engagements and build our understanding while working together effectively.

> In East Africa, there is a need for increased collaboration with HIV vaccine experts to strengthen our influence in the region. Networking with these professionals will provide me with the opportunity to explore potential collaborations on various projects, helping us broaden our impact.

Martin Nabwana

Senior biostatistician, Makerere University – Johns Hopkins University Research Collaboration

Country of work: Uganda

What is your motivation to attend the academy?

My main motivation is that the academy will provide training on state-of-the-art HIV vaccine research and development, specifically the design of such studies. As an epidemiologist and biostatistician, this is pertinent as it is one of my main roles in my work – to help with the design of study projects. Additionally, the training on the use of scientific tools and skills, particularly scientific writing, is critical, not only to my career development, but also to the MU-JHU family and Uganda at large. I submitted an abstract for IAS 2025 and, while drafting it, I realized that I needed more training in scientific writing to develop it into a manuscript. Attending this academy will enhance my knowledge of HIV vaccines and skills in scientific writing, hence enhancing my work.

Secondly, attending the academy will offer valuable networking opportunities with leading multidisciplinary researchers in the field of HIV vaccine development. In East Africa, there is a need for increased collaboration with HIV vaccine experts to strengthen our influence in the region. Networking with these professionals will provide me with the opportunity to explore potential collaborations on various projects, helping us broaden our impact.

Before conducting the PURPOSE 1 study, we conducted a study on vulnerable populations in Uganda, which primarily looked at establishing the background HIV incidence in the Mityana, Mubende and Hoima districts, as well as Kampala. The results of this study were presented at AIDS 2022. I would like to write a manuscript focused on developing a scoring tool to predict HIV acquisition in our setting. However, I need to collaborate with HIV professionals who have done this before so we can come up with a sound paper that will impact the lives of people positively.

How do you plan to use the knowledge gained during the academy?

Firstly, I plan to apply the skills, knowledge and tools gained to enhance HIV vaccine research, including HIV vaccine trial design and statistical and epidemiological modelling. My current role as a senior biostatistician positions me to implement these skills and tools, both in our current ongoing trials and future HIV vaccine trials.

Secondly, I plan to develop manuscripts following the knowledge and skills I will acquire from the scientific writing training. I also plan to collaborate with some of the fellows on some of the manuscripts as a way to share knowledge and facilitate collaboration.

Lastly, the knowledge acquired on the design of HIV vaccine developments will be applied in our grant applications, and I am optimistic that this will strengthen the methodological write-ups in our grants, facilitating HIV vaccine projects in East Africa.

> “I am particularly interested in gaining a deeper understanding in therapeutic vaccines for HIV B-cell-based vaccines, including the existing challenges in designing and developing these vaccines.

Masauso Moses Phiri

Lecturer and researcher, University of Zambia, School of Medicine

Country of work: Zambia

What is your motivation to attend the academy?

Attending the HIV Vaccine Science Academy springs from a decision to broaden my knowledge of HIV vaccines. I am particularly interested in gaining a deeper understanding of therapeutic vaccines for HIV B-cell-based vaccines, including the existing challenges in designing and developing these vaccines. This knowledge will be invaluable as I continue to pursue a career in HIV vaccine and cure research.

After attending the 2023 Research-for-Cure Academy in South Africa and the follow-up event in Livingstone in Zambia, I developed a passion to pursue research in HIV vaccines and/or cure. Through the network developed from these academies, I applied and obtained funding through the NIH Fogarty INSIGHT Scholars programme. Through this programme, I am studying the efficacy and potency of bNAbs on Zambian HIV-1 clade C samples.

How do you plan to use the knowledge gained during the academy?

The knowledge I gained at the Research-for-Cure Academy ignited my deeper interest in the field and fuelled my application for several grant calls. Following that experience, I plan to utilize the knowledge and tools gained at this academy in the following ways: 1) Expand my research knowledge that will further equip me for continued growth in the field of HIV vaccines and prevention methods; 2) Strengthen my research ideas and leverage the knowledge gained to design better delivery systems using nanoparticles; and 3) Grow my network of collaborators as pursuing work in this field requires a concerted effort from new mentors, peers and funding bodies.

> “I aim to leverage connections and collaborations by building lasting relationships with the participants of the academy and the mentors in the field.

Mirriam Nzivo

Tutorial fellow, Jomo Kenyatta University of Agriculture and Technology

Country of work: Kenya

What is your motivation to attend the academy?

I am a microbiologist with a strong background in medical virology and deeply invested in advancing HIV treatment, HIV vaccine research and capacity building. As a university instructor, I have been actively involved in teaching on vaccine preventable diseases research, mentoring students in their research projects, and securing grants to support my work. My recent publication, “HIV Virologic Failure among Patients with Persistent Low-Level Viremia in Nairobi, Kenya: It Is Time to Review the >1000 Virologic Failure Threshold”, highlights my commitment to addressing key challenges in HIV treatment and management.

Currently, I am pursuing a PhD in medical sciences at Heinrich Heine University in Düsseldorf, Germany, as a member of the HIV and AIDS Research Group led by Professor Carsten Münk. My research focuses on understanding the interactions between HIV and host restriction factors, particularly APOBEC3 proteins, with the aim of identifying novel approaches to HIV prevention and treatment.

This training opportunity is invaluable to my career as it will provide mentorship, access to leading experts in HIV vaccine research, and opportunities for collaboration. It will enhance my research capacity, broaden my expertise in HIV vaccine research, and equip me with the skills needed to establish a strong HIV research group.

How do you plan to use the knowledge gained during the academy?

I intend to use the skills I learn to improve my present research to come up with novel strategies for HIV prevention and cure. This will be my stepping stone to join the HIV vaccine research field. I will use the knowledge on vaccine design to identify gaps and come up with strategies to offer solutions to the currently available vaccine models and to come up with new approaches for vaccine development.

The scientific writing skills will be invaluable in coming up with competitive proposals to seek grants and publish my scientific findings. I aim to leverage connections and collaborations by building lasting relationships with the participants of the academy and the mentors in the field. I will have open discussions and ensure that I remain in contact with these people after the academy. I will take an interest in participants' research to find opportunities for collaboration. Regarding the global collaborators, I aim to look for opportunities to be mentored in the field and collaborate in future.

> “I hope to build collaborations with representatives from key HIV vaccine research organizations.

Nobubelo Kwanele Ngandu

Specialist scientist, South African Medical Research Council

Country of work: South Africa

What is your motivation to attend the academy?

The main reason for applying to the 2025 academy is to understand the immunology results produced from HIV vaccine clinical trials to date and to engage in discussions about how we can put these results together in a meaningful manner. I am working on a project proposal with the aim to identify, collate, monitor and synthesize immune response results observed from Phase 2 and later HIV clinical trials. Therefore, I hope to build collaborations with representatives from key HIV vaccine research organizations who can provide ongoing advice during the development and conduct of this project.

How do you plan to use the knowledge gained during the academy?

Firstly, I wish to complete the project proposal to be ready for funding applications and ethics approval processes. I hope to have more clarity on the amount of data we have to work with, finalize collaborations and resources needed for the protocol and, if possible, identify research groups to involve at various stages of the project.

Secondly, I wish to refine my research questions in HIV molecular epidemiology for the pregnant and breastfeeding population to be meaningful and directly informative for HIV treatment and prevention vaccine immunogen.

> My motivation is to be up to date with the latest HIV vaccine science and become one of the lead scientists in this region in Africa.

Patricia Ramgi

Medical doctor, Instituto Nacional de Saúde

Country of work: Mozambique

What is your motivation to attend the academy?

My motivation is to be up to date with the latest HIV vaccine science and become one of the lead scientists in this region in Africa. My career started in HIV vaccine clinical trials as a study clinician on the TaMoVac consortium trial and, since then, I have become passionate about this field. I still believe that an HIV vaccine can be a game changer for treatment and prevention.

I participated in two HVTN vaccine trials – HVTN 107 and HVTN 703 – as the principal investigator designee. I hope to strengthen my knowledge in the HIV vaccine field, better understand the advanced data analysis in this area, and increase my network and leadership in the field.

How do you plan to use the knowledge gained during the academy?

As I work specifically in the HIV vaccine programme in my institution, I would like to share all the knowledge gained with my peers and create a stronger and more united group in my country.

> This training will enable me to play a more impactful role in HIV vaccine research and development in Africa.

Paul Kitandwe

Research officer, Uganda Virus Research Institute

Country of work: Uganda

What is your motivation to attend the academy?

Attending the academy will equip me with the knowledge and skills and help me build the professional connections I need to make a more impactful contribution to HIV vaccine research in Africa.

A major challenge in the development of HIV vaccines is the induction of bNAbs. I hope that this training will deepen my understanding of the current strategies being used to induce bNAbs, such as rational immunogen design, germline targeting and B-cell lineage-based vaccination. This knowledge will help me design HIV vaccine immunogens tailored to induce effective immune responses against diverse viral subtypes, especially those circulating in African populations.

I am also interested in exploring the role of T-cell immunity in inducing protective HIV vaccine responses. The induction of robust CD8+ T-cell responses is crucial for controlling HIV. I hope to gain insights into T-cell-based vaccine approaches that complement bNAb induction vaccination strategies.

This academy presents a unique platform for me to engage with leading experts and peers in the field of HIV vaccine R&D.

How do you plan to use the knowledge gained during the academy?

The knowledge I gain will be applied in the design of HIV vaccine immunogens. This academy will provide me with deeper insights into bNAb-inducing strategies, such as rational immunogen design, germline targeting and B-cell lineage-based vaccination. I intend to integrate these concepts into designing mRNA- and self-amplifying RNA (saRNA)-delivered HIV-1 env immunogens tailored to elicit bNAbs against diverse viral subtypes circulating in Africa.

My current research focuses on saRNA vaccine platforms and I am particularly interested in exploring how mRNA and saRNA technologies can be optimized for HIV vaccine development. While mRNA vaccines offer a rapid and flexible approach to vaccine design, they present unique challenges. For example, mRNA and saRNA-delivered HIV-1 env trimers cannot be purified and enriched for the desired prefusion-stabilised closed trimer conformation before vaccination. Additionally, some stabilizing mutations used in soluble native-like HIV-1 env trimers may not be appropriate for in vivo mRNA delivery. Through interactions with leading researchers, I hope to gain insights into how these challenges can be addressed. I aim to optimize the design and delivery of mRNA-based HIV immunogens.

I intend to make connections with leading experts and fellow researchers at the academy to establish strong research partnerships. Further, by sharing my knowledge and insights, I hope to contribute to collaborative research efforts that drive innovation in HIV vaccine science.

I am committed to capacity building and knowledge transfer within the African scientific community. The academy will equip me with advanced expertise that I can share with colleagues, students and fellow scientists. Through mentorship, training sessions and research collaborations, I plan to contribute to strengthening HIV vaccine research in Africa.

> “I intend to initiate collaborations with other researchers working on complementary aspects of HIV vaccine development.

Pious Appiah

PhD student, University of Ghana

Country of work: Ghana

What is your motivation to attend the academy?

As a PhD student and medical laboratory scientist conducting research on HIV-2 envelope epitopes with potential antiviral properties against HIV-1, I am highly motivated to attend the academy. My current work involves using bioinformatic tools to predict potential B- and T-cell epitopes from HIV-2 envelope sequences, synthesizing predicted peptides, and evaluating their immunogenicity and ability to elicit bNAbs. This approach, using HIV-2 as a model for HIV-1 vaccine development, aligns with the cutting-edge research to be discussed at the academy.

I am eager to learn about the latest advancements in HIV vaccine design, particularly in germline targeting. I hope to gain insights into new computational approaches for epitope prediction and innovative vaccine delivery platforms. As my research progresses towards in vivo studies, I am keen to develop a deeper understanding of HIV vaccine clinical trial design. I also aim to learn about best practices in experimental and clinical trial protocol development, participant recruitment strategies and ethical considerations specific to HIV vaccine development research.

As a member of the HIV REST group in Ghana and the African Virologists Network, I am eager to establish connections with researchers working on similar challenges. This could lead to collaborations and mentorship opportunities that would support my growth as an early-career HIV researcher. Improving my scientific writing and presentation skills is another key goal.

I hope to gain an understanding of the current HIV vaccine landscape, refine my research approach and contribute more effectively to the global effort to develop an HIV vaccine.

How do you plan to use the knowledge gained during the academy?

I intend to apply the knowledge, skills and tools acquired in several ways to advance my research and career in HIV vaccine development.

Although my current work is preclinical, the knowledge gained about clinical trial design and implementation will be crucial for planning the translational aspects of our research. I will use this information to develop a roadmap for potential future clinical studies, ensuring that our preclinical work is aligned with the requirements for human trials. Exposure to diverse approaches in HIV vaccine development at the academy may inspire new directions for our research. I plan to explore how our work on HIV-2 envelope epitopes could be integrated with other promising strategies, such as mosaic vaccines or novel delivery platforms, potentially leading to more comprehensive vaccine candidates.

The connections formed will be important in expanding our research network. I intend to initiate collaborations with other researchers working on complementary aspects of HIV vaccine development. Skills gained in scientific writing and presentation will be immediately applied to improve the dissemination of our research findings. I plan to revise our current manuscripts and prepare new ones incorporating the insights gained, potentially increasing the impact and reach of our work. By implementing these strategies, I aim to significantly enhance the quality and impact of our HIV vaccine research.

> “Knowing the HIV vaccines in the pipeline will assist us in making our research unit more attractive to sponsors and to be equipped with the right infrastructure to conduct those trials.

Rujeko Mashingaidze

Research doctor, The Aurum Institute

Country of work: South Africa

What is your motivation to attend the academy?

I have worked on quite a few HIV vaccine clinical trials – HVTN 702 (Phase 2b/3), HVTN 703 (Phase 2b) and HVTN 705 (Phase 2b) – all of which were unfortunately halted due to lack of vaccine efficacy. As a medical doctor in South Africa, I have seen the horrors HIV has caused, especially among adolescent girls and young women. To reduce the prevalence and incidence of HIV within our borders, we need to invest in better preventative strategies and increase roll out of the current preventative methods. But science must work twice as hard to develop a new and effective HIV vaccine.

I hope to learn of the current HIV vaccine developments in the pipeline, contribute to the protocol development of future clinical trials and work as a lead investigator in future clinical trials.

How do you plan to use the knowledge gained during the academy?

The knowledge and tools I will gain will be passed on to my colleagues at our clinical research site. As a site that has worked on both HIV and TB clinical trials in the past, we believe we are a great candidate for future clinical trials. Knowing the HIV vaccines in the pipeline will assist us in making our research unit more attractive to sponsors and to be equipped with the right infrastructure to conduct those trials. Attending the academy will also assist with networking with other leaders in the HIV vaccine space, who we can collaborate with in the future.

> The academy's focus on African-led research is particularly important to me as it aligns with my commitment to advancing research that is relevant and impactful for Africa.

Sandile Cele

Scientist, The Aurum Institute

Country of work: South Africa

What is your motivation to attend the academy?

I am highly motivated to attend the academy as it presents a unique opportunity to enhance my expertise in HIV vaccine research and trial design. Currently, I lead a clinical research project at the Aurum Institute, focusing on HIV B-cell responses and the development of assays for HIV vaccine trials. This work, particularly with adolescent girls and young women, is critical for understanding the potential of bNAbs as a preventive measure against HIV. My role in this study is not only to lead the research, but also to optimize and validate high-throughput assays for clinical use, which is a complex but vital aspect of advancing vaccine development.

By attending the academy, I hope to gain deeper insights into vaccine design, particularly the strategies used to elicit bNAbs, and to learn about cutting-edge tools in HIV vaccine R&D. I am especially interested in refining my skills in scientific writing, data analysis and trial design to ensure that the studies I lead are not only scientifically rigorous but also aligned with global best practices. Moreover, I look forward to building lasting collaborations with global experts and African researchers to foster innovation in the field and contribute to the development of an HIV vaccine that is effective across diverse populations. The academy's focus on African-led research is particularly important to me as it aligns with my commitment to advancing research that is relevant and impactful for Africa.

How do you plan to use the knowledge gained during the academy?

I plan to integrate the knowledge, skills and tools gained into my current research on HIV vaccine development. The academy will provide valuable insights into the latest advances in vaccine design, including novel technologies and methodologies that I can apply to the Multi-site Adolescent Girls and Young Women study and other projects I am leading. For example, I aim to incorporate the cutting-edge strategies for identifying and targeting bNAbs in vulnerable populations, which aligns with the work we are doing with adolescent girls and young women in our study.

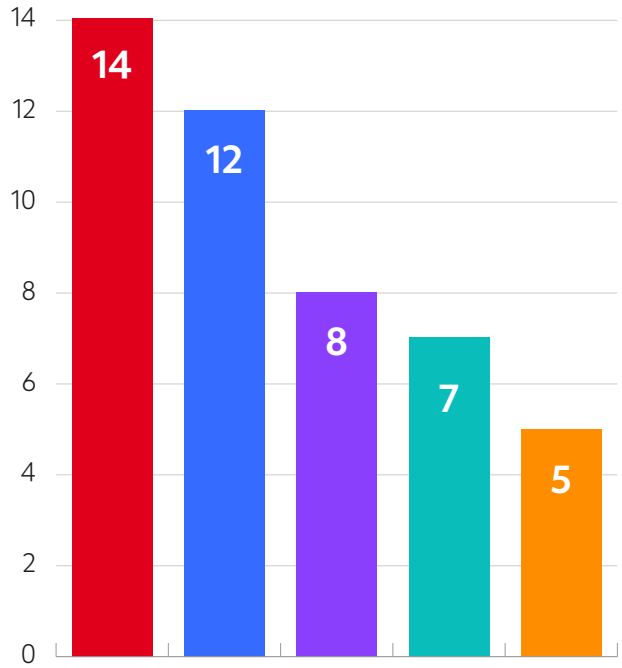
Additionally, the focus on scientific writing and communication will enhance my ability to effectively present and publish my research findings, allowing me to better share our progress with the scientific community. The academy will also offer a unique opportunity to engage with leading experts in HIV vaccine research, and I intend to leverage these new connections to foster collaborations that can further strengthen my research. Building a sustainable network of researchers, particularly within Africa, will be key in advancing the development of an HIV vaccine and improving global health outcomes.vv

The insights gained will also guide my leadership approach, helping me better mentor my team and contribute to the overall research strategy at the Aurum Institute. By applying the knowledge from the academy, I hope to drive innovation in our ongoing HIV vaccine trials and contribute to global efforts to respond to HIV.

Survey results

> **I am especially grateful for the collaborative environment that encouraged open discussion and learning. This experience has greatly enhanced my understanding of HIV vaccine research, and I am excited to apply the knowledge to my work at Health Healing Network Burundi. Thank you for organizing such an impactful and enriching programme.**
>
> Fellow

What did you gain by attending this academy?



- **14** A better understanding of HIV science and new findings
- **12** It gave me new contacts in the field of HIV
- **8** It gave me opportunities for collaboration in order to improve HIV policies and programmes
- **7** It gave me new ideas on how the latest findings in HIV can be applied to local issues
- **5** Ideas and solutions for challenges I face at work

After attending this academy:

> **As a lecturer and with a research focus on bNAbs, I was reminded of my previous research focus on T-cell immunity. The academy rekindled the idea to tap into T-cell-based therapeutic HIV vaccine research in order to deliver knowledge on both arms of the immunity, that is, B-cell and T-cell HIV therapies.**
>
> Fellow

After attending this academy:

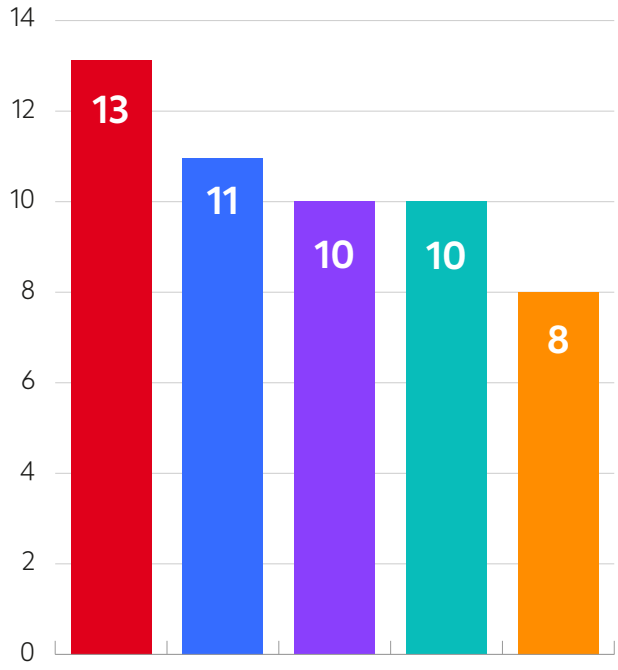
> I will apply the knowledge and tools gained during the training to refine the concept note I developed, incorporating the valuable feedback provided by the trainers. My goal is to transform it into a strong, fundable proposal for postdoctoral grant applications. Additionally, the insights I gained about funding opportunities for early-career researchers will guide me in identifying suitable funders to support my research.
>
> Fellow

> Having gained insight on the currently preferred and promising types of HIV vaccine immunogens, I will shape my new research questions and projects such that the publications we produce are relevant to the current and future landscape in the field.
>
> Fellow

> As soon as I get back to work, I will present a summary of the academy activities to my colleagues. Our site will prepare itself for future HIV vaccine studies to make it more attractive to clinical trial sponsors.
>
> Fellow

> Through the knowledge I gained from the academy, I was able to refine my research question pretty well and I plan to continue using this knowledge in my work as I write proposals and manuscripts.
>
> Fellow

I now intend to:



- **13** Use new knowledge gained to contribute to HIV science
- **11** Refine/improve existing research practice or methodology
- **10** Initiate a new research project or activity and/or scale up existing ones
- **10** Develop new collaborations or strengthen existing ones
- **8** Change the way I do my work/adapt my practices to the latest evidence

https://www.iasociety.org/ias-programme/global-hiv-vaccine-enterprise