

Call for Applications: 2024 CARTA Research Hubs Postdoctoral Fellowships

As we advance through the third phase of the CARTA strategy (2021-2025), known as *CARTA2025*, CARTA has established two research hubs at our partner institutions: The Emerging and Re-emerging Infectious Diseases anchored at **Makerere University** and the DIScovery via CARTA OUTcomes-based Research training and Scientific Excellence (DISCOURSE) Hub on Infectious Diseases and Oncology anchored at the **University of the Witwatersrand, Johannesburg**. These hubs are designed to offer research knowledge, training, and expertise in specific thematic areas.

The research focus of the hubs is broad and multidisciplinary, building on the expertise of CARTA graduates and the program's interventions to enhance research, training, and management capacities. These hubs will serve as centers for conducting multidisciplinary, policy-relevant research, aligned with regional development agendas. The research will address the complexities within selected thematic areas, guided by frameworks encompassing social, environmental, economic, and political determinants of health and health systems strengthening, with a uniquely African focus.

The hubs will also serve as platforms for embedding the research of early career researchers (both doctoral and postdoctoral), offering a space for CARTA fellows from within and outside the institutions to conduct their research, receive mentorship, and thrive in a dynamic, supportive research environment. They will act as catalysts for strengthening the research culture within CARTA partner institutions by providing hands-on training in research management and creating opportunities for career growth, particularly for early career researchers.

To support this objective, CARTA invites applications for four postdoctoral fellowships, with two positions available at each CARTA research hub. Please note that these are two separate calls, and if interested in both, you must submit a separate application for each. Details of the application requirements for each hub are outlined below. **Application Deadline: October 28, 2024, 2359hrs EAT.**

Fellowship Details

- **Duration:** The fellowship will last for 12 months. Fellows based in the IDORI DISCOURSE Hub may be eligible for a second-year renewal, contingent on performance.
- **Research Focus:** Fellows will engage in research activities within the thematic areas of the hubs, contributing to addressing the broad and specific research questions identified in each theme.
- **Capacity Building:** Fellows will participate in training programs including CARTA programs as both trainees and trainers, enhancing their skills and contributing to the hubs' educational objectives.

Evaluation Criteria

Candidates will be selected based on their previous research and academic achievements that align with the research hubs' thematic areas. They must demonstrate a strong commitment to building research capacity at their institutions and show potential for research leadership.

Housed at African Population and Health Research Center (APHRC)



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What the Fellowships will Cover

The postdoctoral fellowship will cover travel expenses and a monthly stipend of \$3,000 for up to 12 months of full-time placement. Additional benefits include medical insurance, as well as coverage for research and training costs. Due to the short-term nature of the program, the fellowship does not cover expenses for accompanying dependents.

1. Postdoctoral Fellowships in The Emerging and Re-emerging Infectious Diseases (TERID) Hub

The Emerging and Re-Emerging Infectious Diseases (TERID) Hub at **Makerere University**, under the Consortium for Advanced Research Training in Africa (CARTA), is excited to announce the call for applications for its Postdoctoral Fellowship Program. This initiative is part of a three-year project focused on critical research into Emerging and Re-Emerging Infectious Diseases, which are prioritized as significant national concerns in the East African region.

The TERID Hub focuses on emerging and re-emerging infectious diseases like Malaria, Tuberculosis, various zoonotic and water-borne infections, neglected tropical diseases, and antimicrobial resistance. The hub aims to generate impactful knowledge and solutions for these health challenges operating under four main thematic areas: [1] **Surveillance, Preparedness, and Response (SPAR)**; [2] **Infection Prevention and Control (IPAC)**; [3] **One Health and Planetary Health (OHP)**; and [4] **Anti-Microbial Resistance and Stewardship (AMRS)**.

Fellowship Details

- **Duration:** The fellowship will last for 12 months, involving 9 months at Makerere University and 3 months at the University of Rwanda.
- **Research Focus:** Fellows will engage in research activities within the thematic areas of the hub, contributing to addressing the broad and specific research questions identified in each theme.
- **Mentorship:** Each fellow will be mentored by three academic staff members from the collaborating institutions (Makerere University, the University of Rwanda, and the Swiss Tropical and Public Health Institute), ensuring comprehensive guidance and support.
- **Capacity Building:** Fellows will participate in training programs including CARTA programs as both trainees and trainers, enhancing their skills and contributing to the hub's educational objectives.

Eligibility

- Applicants should have completed doctoral studies less than five (5) years ago. CARTA graduates will be given priority.
- Candidates must demonstrate the ability to fit within the hub's thematic areas and contribute significantly to its research objectives.

Evaluation Criteria

Candidates will be selected based on their previous research and academic achievements, that align with the research hub's thematic areas, as well as the capacity to design a research concept in the area. They must demonstrate a strong commitment to research capacity building at their institutions as well as potential for research leadership.

What the Fellowship Will Cover

The postdoctoral fellowship award will cover travel costs and a monthly stipend of \$3,000 for up to 12 months of full-time placement. Other benefits include medical insurance, research and training costs. Due to the short-term nature of the postdoctoral research fellowship program, the fellowships will not cover accompanying dependents.

How to Apply

Applicants must submit the following documents:

- A completed [application form](#) (please download and complete).
- Updated CV, which should showcase publications, grants, and awards.
- Two letters of recommendation, one from a senior academic who understands your research and potential, and a second one from your head of department or dean.
- A statement from your current employer indicating willingness and support to allow the applicant to meet the demands of the postdoctoral fellowship.
- E-copies of your most significant publications (at least two) over the last three years

Submit your application electronically via REDCap through this [LINK](#). Please ensure that all parts of your application are complete and submitted by the **deadline of October 28, 2024, by 2359hrs, EAT**.

For any inquiries about the fellowship, research themes, and application guidelines, please contact carta@aphrc.org, and copy rkaroki@aphrc.org.

2. Postdoctoral Fellowships in the DISCOURSE Hub on Infectious Diseases and Oncology

The DISCOURSE CARTA Research Hub (*The transformational DIScovery via CARTA Qutcomes-based Research training and Scientific Excellence Hub*) invites applications for **up to three** CARTA Postdoctoral Fellowship positions (2025-2026).

Eligibility

- Postdoctoral fellows, who have completed their PhDs within the last 8 years.
- Applicants should be staff members at one of the [CARTA Africa Partners](#) located in **South Africa, Rwanda, or Uganda** (due to the location of the research sites, and the development of a critical research mass of the DISCOURSE Hub in these three geographic locations). One of the postdoctoral fellows must be based in South Africa.
- CARTA graduates may receive preference to support CARTA critical mass development
- The fellow must work primarily **on-site** in the country where the research project takes place (i.e no remote/online possibility as we want to build capacity and networks) and may, with permission, split their time across any of the three countries where DISCOURSE projects take place if the research project requires split-site work in these locations
- The fellow must work **full-time** on the selected DISCOURSE project (i.e. no undertaking of additional part-time work, remunerated or otherwise, unless linked directly to DISCOURSE-related capacity development).

How to Apply

Please submit the following documentation:

1. A completed [application form](#). Please download and complete

Compulsory supporting documentation

- 2a. Letter of motivation (max two pages) in which you indicate the following:

- o Your preferred research projects (please rank your top 3 choices: 1 = most preferred project; 2nd choice; 3 = 3rd choice; see Projects 1 – 5 outlined in Appendix 1)
Your motivation for undertaking a CARTA Postdoctoral Fellowship and/or the specific project(s) concerned
 - o Highlight your research qualifications and technical skills that align with the selected projects.
- 2b. Updated CV, which should showcase research outputs, such as peer-reviewed publications, impact stories and/or patents.

Optional supporting documentation

3. Outline your envisaged location (institution and country) where you would ideally carry out your research project.
 - o Fellowships that are conducted at an institution different to that where the PhD was undertaken will be given preference (in line with the CARTA capacity development agenda to not stay at the same institution, but to obtain new skills and expertise).
4. Copy of PhD certificate

Please refer to **the appendix below** for further details on the DISCOURSE Hub research projects for prospective Postdoctoral Fellows.

Submit your application electronically via REDCap on this [LINK](#). Please ensure that all parts of your application are complete and submitted by the **deadline of October 28, 2024, 2359hrs, EAT**.

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APPENDIX: DISCOURSE Hub Thematic Areas and Projects

Below are the five possible DISCOURSE Hub cancer-related research projects for prospective postdoctoral fellows to choose from.

THEMATIC AREA 1: Cancer Surveillance, Epidemiology and Burden of Disease

Understanding the local context (access to healthcare, surveillance, socio-economic and environmental challenges) in Africa is critical to developing strategies to address the burden of disease. CARTA fellows choosing to work on this theme will geo-temporally map potential oncogenic infectious agents and layer those over geo-temporal cancer patterns in the context of evolving lifestyle cancer risk in sub-Saharan Africa. One specific workstream will be offered within this thematic area:

Project 1: Characterisation of oncogenic risk factors in sub-Saharan Africa

Project mentors and team: Judith Mwansa-Kambafwile (CARTA graduate), Mazvita Sengayi and Carl Chen (South Africa), Phiona Bukirwa (Uganda) and Lydia Businge (Rwanda)

Pathogens and toxins with oncogenic potential such as *Schistosoma mansoni* and *haematobium*, HIV (Sengayi-Muchengeti et al. 2023), and mycotoxins (Xue et al. 2019) have significant provincial variations within each country. Furthermore, demographic transitions and increases in smoking, obesity, alcohol use occurring in the three countries may affect associations between infections and cancer. Beyond cervical cancer, the oncogenic impact of HPV extends to head and neck, penile and anal cancers (Chikandiwa et al. 2019) and molecular and pathologic evidence suggests a role in colorectal, oesophageal, prostate, lung and breast cancers. This presents opportunities to map potential oncogenic infectious agents and cancer patterns in the context of evolving lifestyle cancer

risk. Objectives include: (i) Scoping: To identify sources of data for infectious agents in areas with existing population-based cancer registries, (ii) Environmental: To map prevalence data of infectious agents of interest with cancer data for hypothesis generation, and (iii) Individual: To characterize associations between HIV, HPV, mycotoxins, malaria, TB, Schistosomiasis, and other infections and risk factors and specific cancers.

This hypothesis-generating work will be conducted in an exploratory, phased manner to investigate novel associations between cancer and infectious factors. Fellows may choose a cancer of interest to work on (i.e. *S. mansoni* in colorectal and liver cancer, *S. haematobium* in bladder cancer, HPV and multiple cancers, malaria and EBV in Burkitt's lymphoma, mycotoxins and oesophageal cancer).

Findings from this pilot work would form the foundation for a multi-country, multi-disciplinary, well-funded proposal to investigate the pathogen-cancer relationship; designed, written and submitted by a CARTA fellow, in conjunction with DISCOURSE mentors, at the end of year 2. The goal would be to identify novel approaches for diagnosing, preventing and treating a high burden of cancer.

THEMATIC AREA 2: Cancer Screening and Early Diagnosis

Cancer screening and diagnosis are important components of the cancer control continuum. Effective screening can reduce the incidence and improve the prognosis of cancers. Lack of cancer screening and diagnostics infrastructures are stumbling blocks for cancer control in SSA.

Project 2: Cervical cancer screening and early diagnosis

Project mentors and team: Carole Metekoua (South Africa), Judith Mwansa-Kambafwile and Admire Chikandiwa (CARTA graduates, South Africa), Henry Zakumumpa (CARTA graduate, Uganda), Athanase Munyaneza (Rwanda)

This project characterizes existing Cervical Cancer (CC) screening and diagnostic capacity in Uganda, Rwanda, and South Africa. Objectives include: (i) Identifying the approaches, technologies, and human resources available for screening and diagnosis of CC in the three countries using local and global sources (e.g. gap analysis from the global CanScreen5 assessment conducted in Rwanda), (ii) Mapping distribution, accessibility and effectiveness of CC screening and diagnosis resources (e.g. distance to the healthcare facility, cost to the patient and/or treatment turnaround time), and (iii) Estimating the level of under-diagnosis. Describe cost-effectiveness and feasibility of options to improve CC screening and diagnosis in each country. With objectives achieved, fellow(s) will be positioned to design a high-value, multi-country study to test interventions to strengthen screening.

Project 3: Investigating factors responsible for low uptake of cervical cancer screening in Rwanda

Project mentors and team: Athanase Munyaneza and Marc Hagenima (Rwanda)

CC screening coverage among high-risk eligible women is extremely low: 14-20% in most of Africa (Gafaranga et al. 2022). This country-specific project will identify fundamental factors contributing to low uptake of CC screening in Rwanda. CC screening data (from clinics) will be integrated with the National Cancer Registry (NCR) database to identify CC cases that did not undergo screening. CC cases identified through screening will be compared with unscreened cases to identify promotive and risk factors for cancer screening. The fellow will use the findings from this study to design interventions to address identified factors, leading to a multi-country (co-designed) implementation science proposal to evaluate the impact of implementing the interventions in rural and urban settings in multiple countries.

THEMATIC AREA 3: Factors Impacting Cancer Treatment Effectiveness and Survival

Incident and mortality data on cervical cancer are understudied in SSA. Two proposed projects will utilize an existing cohort of ~1500 women diagnosed with CC in 2021-2022 and treated at the Charlotte Maxeke Johannesburg Academic Hospital Radiation Oncology Department (CMH), (hereafter known as the “CMH cohort”). One project will address barriers to early detection (Tshabalala et al. 2023) and the other will examine the use of biomarkers for management and prognosis.

Project 4: Describing treatments received by HIV+ and HIV- patients in investigating 2-year overall CC survival

Project mentors and team: Oluwatosin Ayeni and Maureen Joffe (South Africa) and Judith Mwansa-Kambafwile (CARTA graduate, South Africa)

This project will describe the socio-demographic and clinical characteristics of the CMH cohort and will assess determinants of stage at diagnosis (including barriers to screening and timely treatment) using regression analysis. It will then compare 2-year overall survival among HIV-positive and HIV-negative patients by treatment received (i.e. conservative, surgical, chemotherapy, and radiotherapy) using Kaplan Meyer plots and hazard ratio assessment for survival determinants.

This pilot research will provide the foundational evidence to design a multi-country clinic-epidemiologic proposal to initiate implementation science research to develop and test interventions to increase CC screening rates and for specific clinical management approaches (based on stage and risk factors) to improve clinical outcomes.

Project 5: Identifying performance biomarkers in predicting progression of cervical HSILs and overall CC survival

Project mentors and team: Admire Chikandiwa (CARTA graduate, Wits University), and Maureen Joffe (Wits University)

Clinical biomarkers could improve early detection and management of high-grade squamous intraepithelial lesions (HSILs) and CC. Biomarkers might have prognostic (i.e. predict disease course) and predictive value (i.e. predict clinical effect, relapse-free period, survival, sensitivity to treatment) which will help to triage patients to specific therapies.

The CARTA fellow will have the opportunity to utilize the existing CMH cohort data set. The cohort study objective is to describe treatments received and compare 2-year overall survival among HIV-positive and HIV-negative patients from the retrospective cohort. The fellow (working with mentors) will establish two sub-cohorts: (a) women with high-grade squamous intraepithelial lesions (HSIL) (pre-cancerous, associated with HPV); (b) women diagnosed with CC. The fellow will evaluate the roles of biomarkers, including p16INK4a, Ki-67, Cyclin D1, P53 and BCL-2, VEGF, CK7, and CK8, and the diversity of the cervicovaginal microbiome. Samples will be from large loop excision of the transformation zone (LLETZ) excisional biopsy in HSIL, or a punch biopsy in the case of invasive CC.