

CALL FOR APPLICATION
Postdoctoral Training Program at the
Noguchi Memorial Institute for Medical Research
University of Ghana, Legon, Ghana

The Program

The Noguchi Memorial Institute for Medical Research (NMIMR), University of Ghana, Legon, Ghana with funding support from the Bill and Melinda Gates Foundation has instituted a Postdoctoral Fellowship Program, to train future research leaders who will contribute to infectious diseases control efforts. The program seeks to stimulate or sustain interest in research in selected tropical diseases by young African scientists who are planning academic or research career paths in an African institution. The program also seeks to train young African scientists toward building a critical mass for control of poverty-related diseases, equip them to compete effectively for international funding for research work in Africa, offer them international exposure, and facilitate their networking and collaboration with other institutions.

Thematic Research Areas

1. Malaria

Malaria places an unacceptable burden on the populations of sub Saharan African countries and impacts negatively on the socio-economic development of the area. In recent times, there has been recognition of this burden worldwide with attendant increases in resources available to implement control strategies. Within the past 5 years, the Bill and Melinda Gates Foundation, with support from the World Health Organization, the Roll Back Malaria (RBM) Partnership and other organizations, has emphasized that elimination and eradication must be the ultimate goal for malaria control programs whilst recognizing that in many countries much still needs to be done to bring malaria under effective control. Successful control programs should lead to substantial changes in the epidemiology of the disease such that interruption in transmission becomes possible. Thus, novel research programs are needed focused on the challenges to elimination to complement current ones targeted at reductions in morbidity and mortality. The Noguchi Memorial Institute for Medical Research has a long-standing Malaria research program in several areas including immunology, molecular biology, entomology and epidemiology. To complement the ongoing research in the Institute, we are looking for young and talented African scientists to undertake Post-Doctoral fellowships in the following areas:

Malaria Transmission & Diagnosis

The current methods for measuring transmission in endemic areas, where majority of infections are asymptomatic, are insensitive, time consuming and expensive. As global efforts to control/eliminate malaria succeed and drive the rates of infections in endemic populations to very low levels, the development of novel and highly sensitive methods are required for monitoring transmission and for determining when elimination/eradication has been achieved, and hence when to stop control activities.

- *We seek talented and motivated young African scientists to submit proposals to conduct studies that address this problem and define the best indices for measuring malaria transmission.*

Host Parasite Interactions

Elucidating the complex interactions between parasite, human-host and vector in the epidemiology of malaria, especially in the era of increasing application of control strategies, will be critical to inform on appropriate strategies and interventions. Recent anecdotal reports of reduced incidence of malaria in several parts of Africa have not been adequately explained. Also, despite years of intensive research on host responses to infection, there is still no consensus on immune correlates of protection. We seek talented individuals to submit proposals for

- *Studies that will bring a deeper understanding of host responses to infection. Such studies should improve our ability to evaluate current interventions and also lead to the development of new interventions.*
- *Studies leading to a deeper understanding of the epidemiology of disease and host-parasite-vector interactions in the face of intensified application of control strategies.*

2. Mycobacterial Infections (TB &BU)

a) *Rapid Diagnostic Tests of Mycobacterial Infections*

Buruli ulcer (BU), caused by *Mycobacterium ulcerans* is diagnosed mainly on clinical grounds, due to limited access to laboratory facilities. The disease is very difficult to diagnose in the early stages but diagnosis is more certain typical indolent, painless ulcers with undermined edges and necrotic sloughs.. Early diagnosis of clinical cases is well recognized to lead to favorable treatment outcomes and can prevent unnecessary surgical excision. Furthermore, this will allow for epidemiologic surveillance. Currently, the most useful procedure for confirming cases is by PCR as microscopy is very insensitive and culture is time demanding. This has made it impossible for confirmation at peripheral centres where the disease is prevalent. An attractive diagnostic option will be a simplified immunodiagnostic procedure, which will avoid invasive procedures for sample collection and would not require highly trained personnel or a complex technological infrastructure. We seek interested young African scientists to

- *Develop and validate a point-of-care diagnostic test for BU. The ideal test format would involve taking either a small amount of body fluids (blood, saliva, urine) or material from the site of the infection for a simple and rapid dipstick or line-test assay*

b) *Screening for novel anti-mycobacterial agents*

Tuberculosis continues to be a major global health problem. Although the Directly Observed Treatment Short Course (DOTS) strategy has been successful in curing an increasing number of patients, a major challenge to this strategy is the emergence of *M. tuberculosis* strains resistant to the first line drugs, especially Rifampicin (RIF) and Isoniazid (INH), making case management more complicated and expensive. There are an estimated 460,000 multidrug resistant TB (MDR-TB) cases each year and approximately 25,000 of these cases are expected to have extensively drug-resistant TB (XDRTB). MDR TB requires 18–24 months of treatment with expensive second line drugs, some of which are injectable agents. XDR-TB severely

reduces the options for treatment. Thus, more efforts are needed in the search for new compounds with anti-TB activity. We seek a motivated and talented young African scientist to participate in a program to

- *Screen local herbal preparations for activity against mycobacteria and also to identify the active compounds.*

3. HIV/AIDS

The Noguchi Memorial Institute for Medical Research has had a long standing research focus in HIV research with established collaborations in country and with outside research groups. It led in the initial laboratory diagnosis and identification program for the country and currently serves as the referral center for ambiguous cases from the field. Through the long-standing collaboration with the National Aids Control Program, the Institute has been addressing issues of drug resistance and changes in the virus. Some of the emerging problems that need to be addressed include understanding of cellular and viral mechanisms underlying HIV cure. We are seeking young and ambitious African scientists interested in the HIV research to submit proposals for studies in one or more of the following issues:

- *Cellular and viral mechanisms underlying HIV maintenance and persistence*
- *Persistence of HIV in patients on long term ART treatment*
- *Host immune mechanisms in the control of infection and viral persistence*
- *Host immune activation and inflammation in patients on ART treatment*

Requirements

Applicants must be Africans and should have Ph.D., MD/Ph.D. or equivalent degree with strong background in a relevant biomedical science (biochemistry, biological sciences, molecular biology, epidemiology etc.) obtained within the past 5 years. Qualified applicants will conduct research in a thematic area and in a strong interdisciplinary environment at the NMIMR for a one-year period (renewable up to three years based on satisfactory performance). Individuals who have submitted their Ph.D. dissertations are also eligible to apply. Applicants must be highly motivated, present strong research and conceptual skills and be interested in developing novel research directions. Applicants must have strong written and oral communication skills in English. This application is open to all English, French, Spanish and Portuguese speaking African nationals. Working knowledge of English would be an advantage.

How to Apply:

Prospective candidates should send their applications to the Post-Doctoral Office, NMIMR. The application package should include: (i) the applicant's CV, (ii) one page vision statement, (iii) one page description of the applicant's research career objectives, (iv) Letters of recommendation from contact information three (3) referees, and (v) the applicant's proposed research in one of the thematic research areas described above. using the attached Application and Proposal Development Form.

Applicants should send both electronic and hardcopies of their applications to The Coordinator, of the Post-Doctoral Office by 31st December 2012 (18.00hr GMT)

Electronic copies should be sent to postdoc@noguchi.mimcom.org

Mail hardcopies to:

The Coordinator
Post-Doctoral Office
Noguchi Memorial Institute for Medical Research
University of Ghana
P.O. Box LG 581
Legon, Accra
GHANA

1. Successful applicants will be notified by end January 2013
2. Selected candidate will commence the Fellowship in March 2013