PhD Studentship Opportunity at the Armauer Hansen Research Institute (AHRI).

The Armauer Hansen Research Institute (AHRI), founded in 1970 through the initiative of the Norwegian and Swedish Save the Children organizations and the Ethiopian Ministry of Health, is a leading biomedical research institute. Named after Gerhard Henrik Armauer Hansen, who first described the leprosy bacillus, AHRI specializes in developing tools for research, vaccines, prevention, control, and treatment of neglected tropical and other major public health diseases through applied biomedical research, studies, and training.

AHRI, operating under Ethiopia's Federal Ministry of Health, invites applications for a PhD studentship.

Title: Developing an in-house multiplex PCR assay for detecting bacterial causes of sepsis and AMR genes.

Project Summary

Bloodstream infection and sepsis are the major causes of morbidity and mortality in low and middle-income countries (LMICs). Bloodstream infections caused by drug-resistant pathogens are very high in Ethiopia. Despite pathogens often developing resistance to treatments, a widespread practice of empirical antibiotic therapy persists in the country.

It is a fact that in Ethiopia, laboratory detection of bacterial causes of sepsis and detection of antimicrobial resistance primarily depend on microbiological characterization of isolates and phenotypic antimicrobial susceptibility testing, respectively.

However, the conventional culture methods for identifying bacteria and susceptibility testing face several challenges. These include slow turnaround times, low sensitivity, false-negative culture results due to prior antibiotic use, false-positive results due to contamination, and the need for multiple cultures. Furthermore, there is difficulty dealing with multi-pathogen samples, that is, in cases where multiple pathogens are present in the bloodstream, conventional cultures may not be able to isolate all of them due to growth requirements, non-viable organisms, or inhibition by other bacteria. Especially, the delay in obtaining culture results can lead to empirical treatment decisions based on clinical suspicion, which may not always be effective if the causative organism is missed or if it is resistant to the initial antibiotics.

To enhance the laboratory diagnosis of sepsis and its antibiotic-resistance genes, which in turn improve patient treatment and outcomes, the use of alternative molecular diagnostic techniques like PCR is vital. Molecular diagnostic methods provide faster and more sensitive detection of pathogens in blood samples, potentially shortening the time to diagnosis and treatment.

Thus, this project aims to develop a rapid and accurate multiplex PCR method for the detection of bacterial causes of sepsis and their antibiotic-resistance genes.

Duration

Studentship will typically between two to three years. The research project starts immediately upon acceptance.

Study sites: Lab based

Value of Studentship

This position/studentship covers full research costs and limited travel support.

Requirement

Applicants must be Ethiopian nationals and should hold a Master's degree in Medical Microbiology, Molecular biology, or related biomedical science fields undertaking a PhD. Unless otherwise stated, students must have been registered at public universities in Ethiopia and completed the required first-year coursework in their PhD program.

How to Apply

Applicants should submit the following documents to the AHRI Research Training Directorate (research.training@ahri.gov.et and https://redcap.link/AMR_genes or )

- A cover letter and their CV, including full contact details of two referees
- Copies of their BSc and MSc degrees and transcripts, number of publications with link (if any)
- Copy of transcript reflecting PhD courses completion
- Recommendation letter from their university Department or PhD advisor

For further information, please contact [Azeb Mekonnen, azeb.mekonnen@ahri.gov.et].

Application closing date: September **12, 2025**

Note: - **Female candidates and/or AHRI staff are strongly encouraged to apply**

- Please make sure you mention the project title in the application (motivation letter)