

# Kumasi Centre for Collaborative Research in Tropical Medicine



Kwame Nkrumah University of  
Science and Technology  
Kumasi, Ghana



Kumasi Centre for Collaborative Research in Tropical Medicine (KCCR) is a research centre in Ghana for Ghanaian-international collaboration. Founded in 1997, it is a joint venture between the Ministry of Health in Ghana, Kwame Nkrumah University of Science and Technology (KNUST) in Kumasi, Ghana and the Bernhard Nocht Institute for Tropical Medicine (BNITM) in Hamburg, Germany.

The objectives of KCCR are to:

- Act as an international platform for biomedical research, based on close collaborations with scientists from national and international institutions
- Conduct basic and applied research on tropical and related diseases.
- Build a cohort of young and energetic scientists to help control the health problems of Africa
- Address scientific topics in medical epidemiology and health implementation on subjects of regional importance.
- Contribute to the development of human and technical resources through teaching, postgraduate training, scientific collaboration and maintaining research facilities.
- Foster multinational scientific collaboration in the diagnostics, treatment and management of tropical diseases.



**The KCCR entrance**

## **Collaborating Institutions**

KCCR and its scientists collaborate with several institutions worldwide. Currently, collaborations exist with at least 116 Institutions worldwide comprising 35 in Ghana, 45 in Africa and 36 in the Global North (Europe, UK, USA, Asia).

## **Research Profile**

KCCR's research profile is rapidly evolving. Current established research groups comprise:

- Skin Neglected Tropical Diseases & Buruli ulcer
- Molecular Diagnostics
- Infection Immunology
- One Health Virology
- One Health Bacteriology
- Infectious Disease Epidemiology
- Filariasis and Onchocerciasis
- Malaria and Entomology
- Bioinformatics and Computational Biology
- Vector Biology
- Infection and Non-Communicable Diseases
- Clinical Research
- Global Health and Infectious Disease

Areas of ongoing clinical trials include Buruli ulcer, COVID-19, Malaria and Filariasis

## **Facilities**

### **Laboratory**



### **KCCR aerial photograph**

KCCR occupies a 300m<sup>2</sup> laboratory space well-equipped with two biosafety level 3 laboratories for work on dangerous bacteria and viruses and those that drive outbreaks. The Centre also has biosafety level 2 laboratories (BSL-2) dedicated for Immunology, Bacteriology, Parasitology, Virology, Molecular biology and Entomology. Street lights, hot water and parts of the laboratories are served by solar generated electricity.



**Extraction room**

The Immunology laboratory is resourced with flow cytometers, tissue culture, incubators, ice makers, centrifuges and ELISA readers.

The Bacteriology laboratory is equipped with a biosafety hood, incubators, microscopes, several different types of culture media and bacterial biochemical identification kits. It also has the VITEK 2 system which provides

accurate and reliable microbial identification and antibiotic susceptibility testing results in less than 24 hours.



**Bacteriology laboratory**

Molecular biology laboratories have been equipped with thermal cyclers for standard PCR and real-time PCR. The equipment also includes Illumina iSeq 100, Qubit, Line Probe Assay, GeneXpert, agarose gel electrophoresis set up, transilluminator, cooled centrifuges and biosafety hoods. Our Agilent TapeStation provides an automated alternative to traditional gel electrophoresis, allowing researchers to analyze the quantity and size of DNA or RNA samples from only a few microliters

The Centre has several freezers set at  $-20^{\circ}\text{C}$ ,  $-80^{\circ}\text{C}$ ,  $-150^{\circ}\text{C}$  and a cold room set at  $4-8^{\circ}\text{C}$  for sample storage. Liquid nitrogen is available for research.

Our newly built entomology laboratory has the capacity for parasite culture.

Our newly constructed state-of-the-art outbreak preparedness block is resourced with all facilities needed for handling new disease outbreaks. Facilities such as biosafety level 3 laboratory (BSL-3), biosafety level 2 laboratories, molecular biology, sequencing, bioinformatics, teleconferencing, meeting rooms and offices for scientists are all available. The installed solar system provides assurance for continuous electricity to the BSL-3 laboratory.





**Snapshot of immunology laboratory**

Additional off-site laboratories are sited at Agogo Presbyterian Hospital- Agogo, St Martin's Hospital - Agroyesum, and St Francis Xavier Hospital - Assin Fosu and these are all equipped with Biosafety Level 2 laboratories with equipment and capacity for bacterial culture and antimicrobial resistance monitoring.



**An off-site laboratory located at Agogo Presbyterian Hospital, Agogo**

**Data Management:** Server, Windows and Apple X systems, LAN and several software for data management are available. There is a data entry room available for data management.

**Transport:**

We also boast of a fleet of 4 -wheel drive vehicles which are used for fieldwork to remote areas.

**Offices:** Offices provided for scientists are equipped with telephones, xerox, internet access and air conditioners.

**Seminar room:** There is a seminar room with a seating capacity of 100 persons, fitted with an LCD projector and internet access

**Security:** KCCR has 24-hour CCTV monitoring and security cover provided by dedicated security personnel. All laboratory areas are access controlled.

**Guesthouse:** KCCR provides accommodation for visiting scientists. The guesthouse located onsite has 8 self-contained apartments of 38m<sup>2</sup> each with telephone, internet access and a kitchen shared by two parties.

**Cafeteria:** Located within its premises is a cafeteria that provides delicious breakfast, lunch and dinner upon request.

**Staff**

After 25 years, KCCR staff have gained considerable experience from their involvement in joint research projects. There are at least 34 core staff working in administration, finance, logistics, information technology and systems administration, transport, workshop, maintenance, laundry & grounds, guest house, and security. Currently, at least 134 full-time and 184 part-time research staff are implementing more than 60 research projects. Core staff and project staff work in harmony to ensure that projects are conducted well.



**KCCR family photo**

### **How to conduct research at KCCR**

Scientists seeking to conduct research at the Centre should contact the Scientific Director after completing the "Project Plan". Forms should be downloaded from [www.kccr-ghana.org](http://www.kccr-ghana.org)

For research involving human beings, ethical approval must be obtained from the Committee of Human Research, Publications and Ethics of the School of Medical Sciences of the Kwame Nkrumah University of Science and Technology, which examines applications confidentially. Applications should be submitted by the Ghanaian co-principal investigator of the respective project.





**KCCR research staff working in the field**

### **User Fees**

Appropriate charges will be raised for bench usage, research management cost(RSMC), transport, boarding and lodging. For detailed information, kindly contact the KCCR office.

### **Contact**

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