

UNITID LABORATORIES



INTRODUCTION: The University of Nairobi institute of tropical and infectious diseases (UNITID) is housed in a modern building complex at the Kenyatta national hospital complex grounds. It has an administrative block and a laboratory wing. The building was officially opened on the 19th January 2007. The laboratory wing comprises specialized laboratories such as molecular/PCR, TB, Bacteriology, Chemistry, Serology/Immunology, Flow Cytometry and Tissue culture. Other facilities within the institute include a biorepository facility. The institute also houses two **Biosafety Level 3 laboratories**. These laboratories are run through joint partnership between universities of Nairobi-Kenya, university of Manitoba, Canada and The National Microbiology of Canada. Our main goal is to provide laboratory services to support research in emerging and re-emerging infectious diseases. These include but not limited to malaria, HIV, TB and other hemorrhagic fever viruses. We also provide laboratory diagnostic services to other laboratories and hospitals.

WE OFFER THE FOLLOWING SERVICES:

- Support research work on emerging and re-emerging infectious diseases.
- Support research in clinical trials
- Support research in molecular biology, immunology and microbiology.
- Provide diagnosis services in areas such as TB diagnosis by genexpert, HIV viral load, HIV drug resistance testing and screening of Human Papillomavirus (HPV).
- Provide bio-repository services for storage of biological specimens.

1: STAFF



Dr. Julius Oyugi, Lab Director



Lab team 2012

The current laboratory staffs at the institute consist of a Laboratory Director, senior laboratory technologists and support staff. All our staff are well trained.

2: LABORATORY FACILITIES

a) **Biosafety level 3 laboratories (BSL-3):** The Institute houses two BSL-3 laboratories namely, Retro-Virology and Emerging Pathogen Bio-containment laboratories. Both labs operate under negative pressure.

The Retro-Virology Bio-containment BSL-3 laboratory: The lab is dedicated to HIV research work dealing with culture of high concentrations of the virus. This may include but not limited to work such as testing any HIV drug target or products that may inhibit HIV from entry into host cells as well as neutralizations assays.

Enhanced Bio-containment BSL-3 laboratory: This laboratory is equipped with a class III biological safety cabinet. Due to the higher level of containment offered by this lab, this facility can handle many of the risk group 4 microorganisms. Consequently, it has the potential for; (i) research on emerging and re-emerging risk group 4 pathogens, (ii) surveillance and control of emerging and re-emerging pathogens and (iii) participating in disease outbreak in East, Central and Southern Africa region.



a) **Biorepository facility:** Storage of human biological material either for short or long term is always a challenge to many researchers with limited resources and short term projects. At UNITID, we have a spacious biorepository room equipped with one large liquid nitrogen tank and several medium size tanks. The facility also has several minus 80 freezers. All these are currently used for storage of biological samples for research purposes. However, there is still a lot of room for storage of samples for other researchers who would wish to store their samples for long term purposes. All the freezers and liquid nitrogen tank are fitted with a temperature monitor system that monitors temperature on 24 hours.



Liquid Nitrogen tanks



Freezers

- b) **Molecular biology/PCR laboratory:** Our molecular biology laboratory is equipped with state of art PCR equipment that includes RT-PCR machine (ABI-7500), a sequencer (ABI 3130) and thermocyclers. With this facility, we are capable of performing any molecular techniques ranging from basic PCR to sequencing. Currently, our laboratory is engaged in the following techniques; HIV drug resistance testing, HIV viral load, screening of Human papillomavirus, Chlamydia trachomatis and Gonorrhoea.



ABI 3130



ABI 7500

- c) **Flow Cytometry and Genomics:** This lab is equipped with a ten color BD LSR II flow cytometer, FACS caliber and haematology analyzer. The LSR II is mainly used for research that involves analysis of immunological markers. The FACS caliber is used both for research and monitoring of HIV infected patients for CD4 test. These equipments are available for use by researchers and graduate students whose research requires analysis of any immunological markers.



LSR-II



FACS CALIBUR

- d) **TB laboratory:** Our TB laboratory is currently equipped to perform TB screening using AFB method and also detection of MDR TB by use of Genexpert. The advantage of using genexpert is that a patient would be able to know whether they have MDR TB in a day. To further improve TB diagnosis, we are currently in the process of introducing a liquid culture method known as MODS.



- e) **Microbiology and Serology laboratory:** These two sections are equipped to perform any serological and bacteriological assay. Currently, this section is being used for HIV diagnosis by ELISA and diagnosis of Gonorrhoea by culture.



- f) **Clinical chemistry laboratory:** This laboratory is equipped with an automated chemistry analyzer. It has capability of performing the basic biochemistry tests.



QUALITY MANAGEMENT (QC): Technologists conform to strict internal quality control and system maintenance for equipment, calibration and validation. Constant internal and external quality checks programs are factored in the system Documentation, SOPs are all updated and available on request



QUALITY ASSURANCE: The lab is enrolled in a number of quality assurance programs both locally and abroad for a number of laboratory tests. All our equipment are calibrated and are on service contract. All our staff have relevant qualifications as per the area of responsibility and are registered by their respective regulatory bodies e.g. KMPDB and KMTTLB. Dr. J. Oyugi the laboratory director has many years of laboratory experience and is a PhD holder.

LOCATION AND CONTACT

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