MakBRC

MAKERERE UNIVERSITY
BIOMEDICAL RESEARCH CENTRE (MakBRC)

ANNUAL REPORT 2023 – 2024

Prepared by:
Makerere University Biomedical Research Centre (MakBRC)
College of Health Sciences
Makerere University, Kampala, Uganda

Published: August, 2025

Contact Information
Makerere University Biomedical Research Centre (MakBRC)
College of Health Sciences, Mulago Hill Road
P. O. Box 75018 Clock Tower, Kampala, Uganda
+256 393 194 316
makbrc.chs@mak.ac.ug
www.brc.mak.ac.ug

Citation of this Report

Any citation of material from this report should clearly acknowledge MakBRC as the source, using the following recommended format:

Makerere University Biomedical Research Centre (MakBRC). Annual Report 2023–2024. Kampala: Makerere University; 2024.

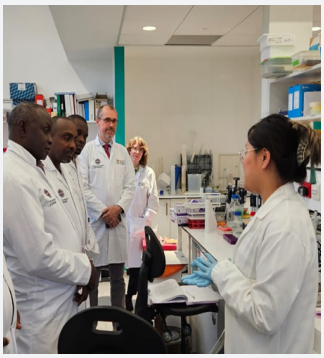
Disclaimer

This report is published for informational and educational purposes. While every effort has been made to ensure accuracy and reliability of the information contained herein, MakBRC assumes no responsibility or liability for any errors, omissions, or consequences arising from its use. The views expressed in this report do not necessarily reflect those of Makerere University, its affiliates, funders, or partners.

The mention of specific organizations, projects, or products does not imply endorsement or recommendation by MakBRC.

TABLE OF CONTENTS




OUTGOING BOARD MEMBERS OF MakBRC

Assoc. Prof. William Buwembo,
Chairperson MaKBRC
Head of Department Anatomy

Prof. Umar Kakumba
Board Member
Deputy Vice Chancellor Academic Affairs - Makerere University

Dr. Robert Kalyesubula
Board Member /
Head Physiology Department

Dr. Hawa Nalwoga
Board Member /
Chair Pathology

Dr. David Kateete
Board Member
Chair Immunology & Molecular Biology

Assoc Prof. Benon Asiimwe
Board Member
Chair Microbiology

Dr. Jackson Mukonzo,
Board Member /
Chair Pharmacology & Therapeutics

Mr. Lukiza Paul,
Board Member /
Chair Medical Illustration

Dr. Steven Mpungu Kiwuwa
Board Member /
Chair Biochemistry

Dr. Robert Ssekitoleko
Board Member /
Head of Department Biomedical Engineering Unit

INCOMING BOARD MEMBERS OF MakBRC

Mr. Lukiza Paul,
Chairperson MaKBRC

Assoc. Prof. William Buwembo,
Board Member
Head of Department Anatomy

Dr. David Kateete
Board Member
Dean, School of Biomedical Sciences

Dr. Godfrey Bbosa
Board Member
Head Pharmacology & Therapeuticst

Dr. Steven Mpungu Kiwuwa
Board Member /
Chair Biochemistry

Dr. Robert Kalyesubula
Board Member /
Head Physiology Department

Dr. Hawa Nalwoga
Board Member /
Chair Pathology

Dr. Freddie Bwanga
Board Member /
Immunology & Molecular Biology.

Prof. Erisa Mwaka
Board Member
Head Anatomy

MakBRC SENIOR MANAGEMENT TEAM

Prof. Moses Joloba
Ag. Managing Director

Dr. Samuel Kirimuda
Head of Operations

Dr. Ivan Mwebaza
Head of Research and Innovations

Dr. Willy Ssengooba
Head of Laboratory & Clinic Research

Mr. Samuel Kasozi
Head of Finance & Strategic Management

Mr. Joshua Asiimwe
Head Legal & HR

Ms. Geraldine Nalwadda
Head of Administration

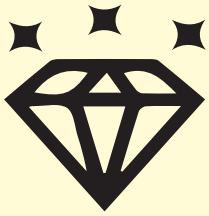
Vision, Mission and Core Institutional Values

VISION

MakBRC visionaries to be a global leader in developing knowledge, treatments and technology for use in health care.

MISSION

MakBRC is dedicated to delivering proven innovative and effective knowledge, treatments and technologies for use in health care



CORE INSTITUTIONAL VALUES

- We are constantly looking for ways to innovate and improve.
- We care about our donors, partners, staff, communities and each friend we serve.
- We strive for excellence in whatever we do.
- We accept our responsibilities and try hard to achieve those things for which we are accountable.
- We are truthful, fair and honest in all interactions.
- We support each other to achieve our set objectives.
- Throughout our work, we demonstrate competence and capacity to generate results to the expected institutional, national, international and discipline specific standards.
- We ensure acknowledgement, attention and good judgment in dealings with all our stakeholders
- We are an equal opportunity institution that embraces diversity in order to achieve maximum potential without discrimination

List of Acronyms and Abbreviations

AAS	African Academy of Sciences
AfDB	African Development Bank
CDC	U.S. Centers for Disease Control and Prevention
CHS	College of Health Sciences
CI	Confidence Interval
COVID-19	Coronavirus Disease 2019
CTU	Clinical Trials Unit
DNA	Deoxyribonucleic Acid
EDCTP	European & Developing Countries Clinical Trials Partnership
EID	Emerging Infectious Diseases
FDA	Food and Drug Administration
GCP	Good Clinical Practice
GDP	Gross Domestic Product
GLP	Good Laboratory Practice
HIV	Human Immunodeficiency Virus
HR	Human Resources
IBRH3AU	Integrated Biorepository of H3Africa Uganda
ICT	Information and Communication Technology
IDRC	Infectious Diseases Research Collaboration
IRB	nstitutional Review Board
JCRC	Joint Clinical Research Centre
LMICs	Low- and Middle-Income Countries
Mak	Makerere University
MakBRC	Makerere University Biomedical Research Centre
MRC/UVRI	Medical Research Council/Uganda Virus Research Institute
MoH	Ministry of Health
MU-JHU	Makerere University–Johns Hopkins University Research Collaboration
NIH	U.S. National Institutes of Health
NCDs	Non-Communicable Diseases
NGO	Non-Governmental Organization
PCR	Polymerase Chain Reaction
QA/QC	Quality Assurance/Quality Control
SDGs	Sustainable Development Goals
SOPs	Standard Operating Procedures
STIs	Sexually Transmitted Infections
TB	Tuberculosis
THRiVE	Training Health Researchers into Vocational Excellence in East Africa
UHC	Universal Health Coverage
UNCST	Uganda National Council for Science and Technology
UoM	University of Makerere (common informal acronym, but verify usage in official docs)
USAID	United States Agency for International Development
UVRI	Uganda Virus Research Institute
WHO	World Health Organization

Introduction

Welcome to the Makerere University Biomedical Research Centre's (MakBRC) Annual Report for the year 2023–2024. Situated within the esteemed Makerere University College of Health Sciences, MakBRC continues to stand as a beacon of innovation, scientific excellence, and environmental stewardship.

This report offers a comprehensive journey through the achievements, challenges, and aspirations that have shaped MakBRC's work in advancing scientific knowledge and promoting conservation. As a Ugandan-registered not-for-profit organization wholly owned by Makerere University, our mission is to pioneer transformative research, foster sustainability, and preserve biodiversity for the benefit of society.

Amidst shifting global and national dynamics, MakBRC has remained resilient and adaptive—expanding research frontiers, strengthening collaborations, and delivering tangible impact at both local and global scales. From breakthroughs in biotechnology to innovative community engagement models, our efforts this year reflect a deep commitment to excellence and lasting change.

Within these pages, you will discover our diverse portfolio of research projects, strategic partnerships, and notable accomplishments. The commissioning of advanced laboratories, the deployment of cutting-edge molecular technologies, and the rollout of forward-looking conservation strategies all speak to our unwavering dedication to scientific advancement and environmental preservation.

As we reflect on the narratives of exploration, discovery, and collaboration that defined 2023–2024, we invite you to celebrate these achievements, consider the lessons learned, and share in our vision for a future where ecosystems and communities thrive in harmony. We extend our sincere appreciation for your continued support and partnership in our mission to foster knowledge, sustainability, and environmental stewardship.

1.1 Objectives of MakBRC

- To develop the capacity of health care practitioners in new cutting-edge techniques
- To promote and conduct research in biomedical sciences
- To innovate, translate and market new technologies and treatments for use in healthcare
- To strengthen and promote better laboratory services
- To improve prevention, care and treatment of diseases
- To support health systems to develop capabilities to prevent, detect and respond to infectious disease outbreaks and biologic threats
- To mobilize resources aimed at improving the health care of the population

1.2 Overview of MakBRC

The Makerere University Biomedical Research Centre (MakBRC) is a registered Ugandan not-for-profit entity, wholly owned by Makerere University and strategically located within the College of Health Sciences, School of Biomedical Sciences. Serving as a cornerstone of biomedical advancement, MakBRC is dedicated to research, innovation, laboratory services,

clinical care, training, and resource mobilization, with a mandate to deliver impactful solutions to pressing health challenges.

MakBRC was conceived through an initiative of the School of Biomedical Sciences (SBS) to establish a Center of Excellence that would sustain and expand the gains of a successful public–private partnership between Makerere University and Medical and Molecular Laboratories Ltd. A special committee from SBS undertook extensive benchmarking of leading centers of excellence within and beyond the University, culminating in a comprehensive proposal outlining the strategic framework for the Centre.

After a rigorous process of consultations, deliberations, and approvals through the appropriate University governance structures, MakBRC was officially established on 7 August 2020. Its formal inauguration was held on 2 September 2020 at the Central Teaching Facility II, an event that also hosted the maiden meeting of the Board of Directors—signifying the beginning of the Centre's governance and operational journey.

Today, MakBRC operates as a distinguished Center of Excellence and a Company Limited by Guarantee, anchored in Makerere University's unwavering commitment to advancing cutting-edge biomedical research, fostering innovation, and delivering high-quality services for both local and global health impact.

Prof. William Buwembo, **Board Chairperson MAKBRC**

MESSAGE FROM THE CHAIRPERSON, BOARD OF DIRECTORS

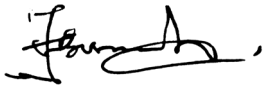
It is my distinct honour to present the 2023–2024 Annual Report of the Makerere University Biomedical Research Centre (MakBRC), a testament to our collective achievements and our steadfast commitment to advancing biomedical sciences in Uganda and beyond.

Over the past year, MakBRC has continued to demonstrate unwavering dedication to integrated thinking, value creation, and sustainability—core principles that underpin our mission to drive cutting-edge research, innovation, and service delivery in the biomedical field. Our strategic focus on championing biomedical sciences reflects our shared vision for transformative impact, innovation, and excellence in healthcare.

The Board of Directors has remained deeply engaged in providing robust governance, sound oversight, and strategic guidance, ensuring that MakBRC stays firmly aligned with its five-year strategic plan. This has involved making deliberate, forward-looking decisions that strengthen our institutional capacity, expand our partnerships, and position the Centre as a leader in biomedical research and innovation.

I extend my heartfelt gratitude to our stakeholders—development partners, collaborators, government agencies, academia, and the communities we serve—for your continued trust and engagement. Your partnership is the cornerstone of our progress and impact. I also commend our management team and dedicated staff for their exceptional commitment, ingenuity, and professionalism, which have propelled MakBRC to new levels of excellence and recognition.

As we reflect on the milestones of this reporting period, we are equally mindful of the challenges ahead and the opportunities they present. With a shared vision, strong governance, and unwavering dedication, I am confident that MakBRC will continue to break new ground, contributing meaningfully to the advancement of biomedical sciences and the improvement of health outcomes locally, regionally, and globally



Prof. William Buwembo
Board Chairperson MAKBRC

Prof. Moses Joloba
Ag. Managing Director

MESSAGE FROM THE AG. MANAGING DIRECTOR

It is with great pleasure that I present the 2023-2024 Annual Report of the Makerere University Biomedical Research Centre (MakBRC). This year has been a testament to our resilience, dedication, and unwavering pursuit of excellence in biomedical research and service delivery, even in the face of formidable challenges.

The lingering impact of global health crises-such as the Ebola Virus Disease outbreak and the COVID-19 pandemic-has underscored the critical importance of preparedness, adaptability, and innovation in the biomedical sciences. I am proud to report that MakBRC not only withstood these challenges but also exceeded its performance targets, affirming our agility and commitment to delivering on our mandate.

Over the past year, we have advanced several strategic priorities that have significantly strengthened our operations. Our in-house capacity-building initiatives have enhanced the skills and expertise of our teams, ensuring we maintain the highest standards in research and service provision. We have also modernized our operational systems-introducing an online financial request platform, streamlining processes, and attracting a portfolio of competitive, funded projects-demonstrating sound stewardship of resources and strong project management capacity.

Collaboration has remained central to our progress. We have continued to work closely with the School of Biomedical Sciences (SBS) at the College of Health Sciences, providing vital laboratory support, training staff, and mentoring the next generation of biomedical researchers and innovators.

Looking ahead, we remain steadfast in implementing our five-year strategic plan, with a focus on fostering innovation, supporting our units and personnel, and delivering state-of-the-art services to researchers. While we are mindful of the uncertainties the future may hold, I am confident that with our dedicated team, supportive Board, and shared vision, MakBRC will continue to thrive and contribute meaningfully to biomedical research and health advancement-both locally and globally.

I extend my deepest appreciation to the Board of Directors for their strategic leadership and unwavering support, and to our Management Team and staff for their hard work, resilience, and creativity. Your collective effort is the driving force behind our success.

Together, let us seize the opportunities before us and continue building a future defined by innovation, excellence, and impact.

Prof. Moses Joloba
Ag. Managing Director
Makerere University Biomedical Research Centre (MakBRC)

1

MakBRC continues to provide outstanding support in teaching and Learning, hosting the largest number of basic scientists in uganda, including PhD, Masters, Undergraduates and International students

1.0 SUPPORT FOR TEACHING AND LEARNING

At MakBRC, we remain deeply committed to advancing biomedical sciences and supporting the success of the School of Biomedical Sciences (SBS). We recognize that robust support systems are vital for nurturing students, enabling groundbreaking research, and strengthening departmental capacity. Our initiatives are strategically designed to respond to the evolving priorities and challenges within the School.

A core focus of our work is student training and development. We are dedicated to equipping future biomedical scientists with the knowledge, skills, and tools they need to excel. To this end, MakBRC provides a variety of opportunities, including structured mentorship programmes, research internships, and targeted skills-development workshops. These platforms give students practical, hands-on exposure while enhancing critical thinking, problem-solving abilities, and technical competence—key attributes for their professional growth.

Beyond student training, we actively facilitate high-quality research within SBS. We appreciate the value of giving researchers access to advanced facilities, modern technologies, and collaborative networks. Our contributions include research grants, fellowships, and strategic partnerships that stimulate innovation, generate new knowledge, and address urgent public health priorities.

We also play a significant role in strengthening the operational capacity of SBS departments. Recognizing that effective infrastructure and administrative systems are essential for academic excellence, MakBRC provides support in facility management, grant administration, and strategic planning. By easing administrative workloads, we enable faculty and technical staff to devote more time to teaching, research, and scholarly engagement.

Our support systems are dynamic and adaptive, continuously reviewed to ensure they remain relevant and impactful. Through these efforts, MakBRC fosters an academic environment defined by excellence, innovation, and inclusivity—one that prepares students, empowers researchers, and strengthens the School's capacity to deliver on its mission.

1.1 Key Highlights

- Student Training and Development:
  - » Mentorship programs, research internships, and specialized workshops.
  - » Focus on practical skills, critical thinking, and career readiness.
- Research Facilitation:
  - » Provision of research grants, fellowships, and partnership opportunities.
  - » Access to advanced facilities and cutting-edge technologies.
  - » Promotion of innovation addressing key health challenges.
- Departmental Capacity Strengthening:
  - » Support in facility management, grant administration, and strategic planning.

- » Reduction of administrative burden to enhance faculty focus on core academic activities.

- Adaptive and Responsive Support:
  - » Continuous evaluation and improvement of support programs to meet evolving School needs.
  - » Commitment to fostering a vibrant, inclusive academic environment rooted in excellence and innovation.

1.2 Support Provided by MakBRC to the School of Biomedical Sciences

MakBRC (Makerere University Biomedical Research Centre) plays a crucial role in supporting a wide range of departments within the School of Biomedical Sciences. The departments benefiting from this support include Pharmacology, Anatomy, Biomedical Engineering, Microbiology, Immunology and Molecular Biology, Pathology, Biochemistry, and Physiology. The specific contributions made by MakBRC to each of these departments are outlined in detail below.

Department	Critical ongoing support
Pharmacology	Grants Mgt, PART Laboratory support, Equipment service and maintenance, business incubation.
Anatomy	Laboratory support, Equipment service and maintenance, business incubation, facility repairs.
Biomedical Engineering	Support to Equipment Workshop, Business incubation, grants management
Microbiology	Grants Mgt, Laboratory support, Equipment service and maintenance, business incubation, grants management.
Immunology and Molecular Biology	Grants Mgt, Laboratory support, business incubation, cross-cutting courses.
Pathology	Grants Mgt, Laboratory support, Equipment service and maintenance, business incubation.
Biochemistry	Equipment service and maintenance, Laboratory accreditation, capacity building, grant management
Physiology	Equipment service and maintenance, grants management

PHARMACOLOGY DEPARTMENT

MakBRC's support for the Pharmacology Department is anchored by its cutting-edge Pharmacology Laboratory, which leads innovative research initiatives aimed at advancing pharmacological science and enhancing patient care. A hallmark of the lab's work is Project PREGART (Pregnancy and ART)—a multidisciplinary research program focused on evaluating the pharmacokinetics, safety, and efficacy of antiretroviral therapy (ART) in pregnant women living with HIV.

In close collaboration with the Infectious Diseases Research Collaboration (IDRC) Uganda, the Pharmacology Lab employs rigorous methodologies—including prospective cohort studies, clinical monitoring, and advanced statistical analyses—to:

- Characterize the pharmacokinetic profiles of ART drugs during pregnancy and understand physiological changes that affect drug metabolism.
- Assess maternal-fetal drug transfer to determine placental passage and fetal drug exposure levels.
- Monitor safety outcomes for both mother and fetus, evaluating adverse reactions and viral suppression efficacy.
- Generate evidence-based recommendations to optimize ART regimens, enhancing therapeutic outcomes while minimizing toxicity risks.

Project PREGART addresses critical knowledge gaps surrounding ART use in pregnancy, directly influencing clinical practice guidelines and shaping health policy. Its translational research approach supports improved maternal health, reduces vertical HIV transmission, and promotes better neonatal outcomes—particularly in resource-limited settings.

Through this flagship project and broader capacity-building efforts, MakBRC empowers the Pharmacology Department to remain at the forefront of pharmacological research that has tangible impacts on public health and patient care.

Ms. Naluyima Sandra, Research Fellow at the Pharmacology Labaratory.

Naluyima Sandra is a dedicated laboratory scientist at Makerere University since August 2018. Specializing in Pharmacokinetic (PK), Pharmaco-dynamic (PD), and Pharmaco-genetics (PG) research of HIV, TB, and malaria, she excels in developing and optimizing HPLC drug assays for anti-infectious drugs, including ARVs. Sandra actively participates in departmental research, grant applications, and project coordination. She contributes to clinical trials, focusing on assessing the safety and efficacy of low-dose efavirenz and dolutegravir among pregnant and breastfeeding women.

ANATOMY DEPARTMENT

MakBRC plays a vital role in supporting the Anatomy Department through comprehensive assistance that enhances both teaching and research capacities. This includes hands-on support for the daily operations and research activities within the anatomy laboratories, ensuring seamless functionality through regular servicing and maintenance of critical anatomical equipment.

The Anatomy Laboratory, bolstered by MakBRC's investment, has expanded its range of services to include embalming, body handling and storage, as well as body cosmetology. These additions significantly strengthen the department's ability to deliver high-quality anatomical education and facilitate advanced research.

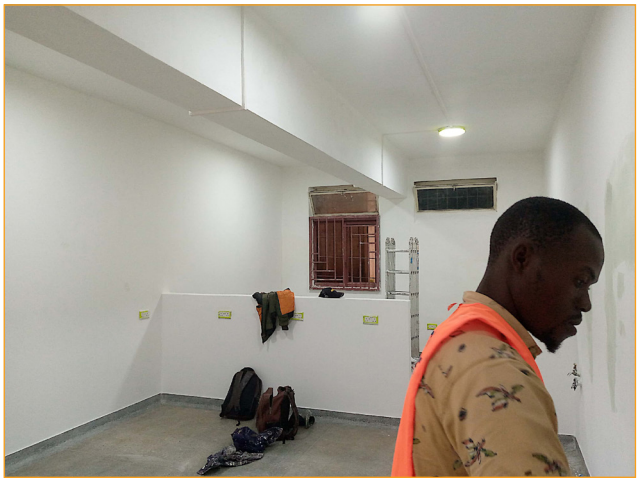
MakBRC also fosters innovation and entrepreneurship within the department through its Business Incubation Project, which aims to translate academic research findings into sustainable business ventures.

Moreover, MakBRC's support extends to facilitating staff participation in prestigious international forums, such as Dr. Michael Okea's involvement in the International Genetically Engineered Machine (iGEM) competition in France. The Centre actively promotes collaboration and knowledge exchange via initiatives like the Principal Investigators Forum organized by the Internal Monitoring Unit and showcases digital platforms including the Information Technology (IT) and Medical Education Resources Portal (MERP) developed by the ICT Team.

Additionally, MakBRC advances interdisciplinary efforts such as the Biomedical Engineering Unit led by Mercy Takuwa and supports key projects including the LEAP Project and the Aflatoxin Project, spearheaded by Julius Mugaga, Ndyamuhaki Ritah, and James Sserubugo, respectively.

These collective efforts exemplify MakBRC's unwavering commitment to enhancing anatomical education, promoting research excellence, and driving innovation that ultimately enriches medical training, research output, and healthcare delivery.

ANATOMY EMBALMING LAB REMODELLING WORKS



PATHOLOGY DEPARTMENT

- MakBRC provides comprehensive support to the Pathology Department, enhancing both diagnostic and research capacities through multiple strategic interventions:
- Grants Management: The Centre facilitates the administration and oversight of pathology research grants, ensuring transparent and efficient use of funds.
- Laboratory Support: Continuous support for laboratory operations has bolstered productivity and expanded the scope of pathology research.
- Equipment Service and Maintenance: Regular servicing and upkeep of critical pathology instruments ensure consistent performance and reliability.
- Business Incubation: MakBRC encourages entrepreneurship within the department by supporting business incubation initiatives that translate research innovations into viable products or services.

Pathology Laboratory:

- With MakBRC's backing, the Pathology Laboratory operates as a comprehensive diagnostic facility offering a broad array of essential tests that underpin clinical decision-making and patient care. These include histology, Pap smear cytology, effusion and other body fluid cytology, fine needle aspiration (FNA), Ziehl-Neelsen (ZN) staining, Giemsa staining, Helicobacter pylori testing, Periodic Acid-Schiff (PAS) staining, and immunohistochemical assays for markers such as ER, PR, HER2, CD45, CD20, and CDK6. The laboratory is also equipped to perform advanced genetic analyses through karyotyping services.
- A key asset is the Leica 1150C Microtome, which enables precise tissue sectioning for detailed histological examination. Through these capabilities, the laboratory significantly contributes to accurate and timely diagnosis, supporting translational research that bridges laboratory findings to clinical practice and ultimately improving patient outcomes.
- MakBRC's sustained investment in the Pathology Department reinforces its role as a cornerstone of biomedical research and clinical diagnostics at Makerere University, advancing health sciences education and fostering innovations in disease diagnosis and management.

Researcher conducting histological analysis in the Pathology Laboratory supported by MakBRC, utilizing the Leica 1150C Microtome for precision tissue sectioning. This essential equipment enables detailed examination of biological samples, contributing to diagnostic and research efforts in pathology and biomedical sciences.

BIOMEDICAL ENGINEERING DEPARTMENT

MakBRC has played a foundational role in the establishment and ongoing success of the Makerere Biomedical Engineering (MakBME) Unit, which operates collaboratively within the School of Biomedical Sciences and the College of Engineering, Design, Art, and Technology (CEDAT). Under the leadership of Mercy Takuwa and oversight by Dr. Robert Ssekitoleko, MakBME's performance is closely monitored by MakBRC to ensure alignment with its strategic objectives.

Addressing the critical shortage of local expertise in medical equipment maintenance, MakBME provides a comprehensive suite of cost-effective services, including equipment maintenance, repair, installation, calibration, and user training. These services support laboratories not only within Makerere University but also extend to external healthcare facilities, thereby enhancing biomedical infrastructure across the region.

In addition to technical services, MakBME is actively engaged in inventory management, procurement of biomedical equipment, electrical engineering works, and refrigeration and air conditioning services—all essential for sustaining healthcare technologies.

The unit's research portfolio focuses on designing and implementing biomedical technologies tailored to low-resource settings. Key ongoing projects include:

- Design and prototyping of affordable medical devices for diagnosis, treatment, and patient monitoring.
- Development of point-of-care diagnostic tools optimized for resource-limited environments.
- Implementation of telemedicine platforms to facilitate remote healthcare delivery and teleconsultations.
- Capacity-building programs aimed at advancing biomedical engineering education and technical skills.
- Collaborative initiatives with local stakeholders and international partners to meet healthcare needs in underserved communities.

By fostering interdisciplinary collaboration among healthcare practitioners, engineers, and policymakers, the Biomedical Engineering Unit strives to develop sustainable, innovative solutions that improve healthcare access and outcomes in resource-constrained settings. Through MakBRC's continued support, MakBME contributes significantly to building local expertise, empowering communities, and advancing health equity both regionally and globally.

State of the art medical equipment at the biomedical engineering Unit

2023 National Science week exhibition by the Bio engineering unit

.

The Biomedical Engineering Staff.

MICROBIOLOGY DEPARTMENT

MakBRC provides extensive and multifaceted support to the Microbiology Department, enhancing its capacity to conduct cutting-edge microbial diagnostics and research critical to addressing infectious diseases and antimicrobial resistance.

- Grants Management: The Centre facilitates effective management of research grants, ensuring sound financial oversight and timely reporting to optimize resource utilization.
- Laboratory Support: MakBRC strengthens laboratory operations by providing essential infrastructure, reagents, and ongoing technical assistance to boost research productivity.
- Equipment Service and Maintenance: Regular servicing and maintenance programs ensure microbiological equipment remains in optimal working condition, supporting uninterrupted diagnostic and research activities.
- Business Incubation: The Centre fosters entrepreneurship by supporting the translation of microbiological research findings into viable commercial ventures, enhancing innovation and sustainability.

The Microbiology Laboratory, a leading research hub within the College of Health Sciences, has seen substantial growth over the past four years, actively engaging in numerous high-impact research projects such as the Progress Study, Fleming Fund initiative, Nosocomial infections study, MRSA and AMR studies, among others. The lab processes over 11,000 samples annually and possesses the capacity to handle more than 25,000 samples per year with advanced automated blood culture systems (Bactec 9120, 9050, 2 FX 40).

Recent technological acquisitions including MALDI-TOF for rapid microbial identification, BD Phoenix M50 for microbial identification and antimicrobial susceptibility testing (AST), and Epicenter for comprehensive data management have greatly enhanced the laboratory's diagnostic precision and surveillance capabilities.

Key Research Initiatives Include:

- **Progress Study:** Investigating microbial infection progression and treatment outcomes via longitudinal patient surveillance.
- **Fleming Fund:** Strengthening antimicrobial resistance (AMR) diagnostic and surveillance capacity in low-income settings.
- **Nosocomial and MRSA Studies:** Examining healthcare-associated infections and transmission dynamics of multidrug-resistant pathogens to inform infection control measures.
- **AMR Surveillance:** Collaborating nationally and internationally to develop rapid diagnostic assays and monitor AMR trends.
- **Mirasol Study:** Focusing on blood transfusion safety through screening of transfusion-transmissible infections.
- **WP4 Prepare Study:** Participating in Pfizer-sponsored clinical trials evaluating Group B Streptococcus (GBS) vaccine efficacy in pregnant women and newborns.
- **Other ongoing projects** addressing maternal sepsis, global health, and infectious diseases through epidemiological and translational research.

The Microbiology Lab demonstrates proficiency in a wide array of advanced microbiological assays, including ELISA,

cytotoxicity assays, flow cytometry, cell and tissue culture, multiplex assays, and more—positioning it at the forefront of scientific innovation.

Led by experts such as Ebwongu Robert Innocent, a seasoned scientist specializing in bacterial-fungal infections among immunocompromised patients, the lab has earned prestigious accreditation from the College of American Pathologists (CAP), underscoring its commitment to excellence in diagnostics and patient care.

Through its robust research portfolio, state-of-the-art infrastructure, and strategic partnerships, the Microbiology Department at MakBRC continues to make invaluable contributions to public health, advancing scientific knowledge, and combating infectious diseases and antimicrobial resistance in Uganda and beyond.

Ebwongu Robert Innocent

Ebwongu Robert Innocent is a seasoned Laboratory Scientist with extensive expertise in microbiology and immunology. With a solid educational background including courses in BBLT and an MSc. in Immunology and Microbiology, Ebwongu boasts over 15 years of professional experience in the field. Currently, he is deeply engrossed in groundbreaking research centered on the prevalence of bacterial-fungal infections among immune-compromised patients at Mulago Hospital in Kampala, Uganda. His dedication to advancing scientific understanding and improving healthcare outcomes underscores his invaluable contribution to the medical community.

Certificate of Accreditation proudly displayed at the Microbiology Laboratory supported by MakBRC, recognizing the excellence of Makerere University's Clinical Microbiology Laboratory in Kampala, Uganda. This accreditation, awarded by the College of American Pathologists (CAP), reflects the laboratory's commitment to maintaining high standards in diagnostic testing and patient care

IMMUNOLOGY AND MOLECULAR BIOLOGY DEPARTMENT

MakBRC significantly strengthens the Immunology and Molecular Biology Department by providing comprehensive support across research, education, and infrastructure:

- **Grants Management:** The Centre oversees the administration and financial management of research grants, ensuring efficient project execution.
- **Student Support:** Currently, MakBRC supports 22 PhD candidates and 50 other students, demonstrating a strong commitment to nurturing academic and research excellence.
- **Laboratory Support:** MakBRC facilitates advanced laboratory infrastructure and resources, empowering cutting-edge research in immunology, molecular biology, and genomics.
- **Business Incubation:** The Centre assists in translating research innovations into marketable products and services, fostering entrepreneurship within the department.
- **Cross-Cutting Courses:** Support for interdisciplinary courses enriches the academic curriculum, promoting collaborative learning and research across departments.

Mycobacteriology Laboratory:

Equipped with biosafety level 3 (BSL-3) containment and advanced molecular platforms, this lab focuses on tuberculosis (TB) and related mycobacterial infections. Key research includes surveillance of TB and multidrug-resistant TB, molecular strain characterization, rapid diagnostic tool evaluation, and host-pathogen interaction studies. The lab contributes significantly to national and global TB control efforts through innovative therapeutic research and collaborations.

Immunology and Molecular Biology Laboratory:

This hub supports diverse projects such as gene expression profiling, molecular assay development for early disease detection, vaccine response characterization, and immunotherapy evaluation. Equipped with state-of-the-art technologies like next-generation sequencing, flow cytometry, ELISA, and multiplex assays, the lab provides crucial insights into immune mechanisms and disease susceptibility.

Integrated Biorepository of H3Africa Uganda (IBRH3AU):

Serving as a centralized facility, the biorepository manages biological specimen collection, processing, storage, and distribution under stringent international standards. It supports genomic research and precision medicine initiatives through bio banking protocols, informatics infrastructure, and capacity-building programs. Collaborations with global research consortia facilitate access to high-quality specimens that accelerate scientific discovery and health improvements.

HPLC/Mass Spectrophotometer Laboratory:

Equipped with a Shimadzu HPLC-MS/MS 8040 system, this laboratory enables advanced proteomic and multi-proteomic analyses of diverse biological samples. Its capabilities have propelled research into protein expression, post-translational modifications, and biomarker discovery, contributing vital knowledge to cellular biology and disease pathogenesis.

The department is led by experienced experts, including Dr. Rose Nabatanzi, who manages the Immunology Laboratory and

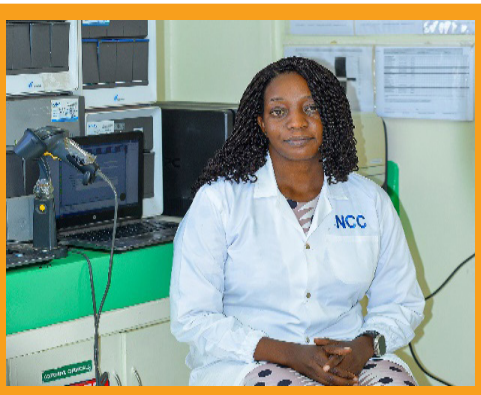
spearheads translational HIV research, and senior researchers such as Dr. William Ssengooba, specializing in molecular microbiology. Their leadership, coupled with skilled technical teams, ensures high-quality research output and capacity development.

Through sustained support, MakBRC fosters a vibrant research environment that advances immunological and molecular biology sciences, drives innovative health solutions, and cultivates future scientific leaders.

Key personel in the Mycobacteriology Laboratory

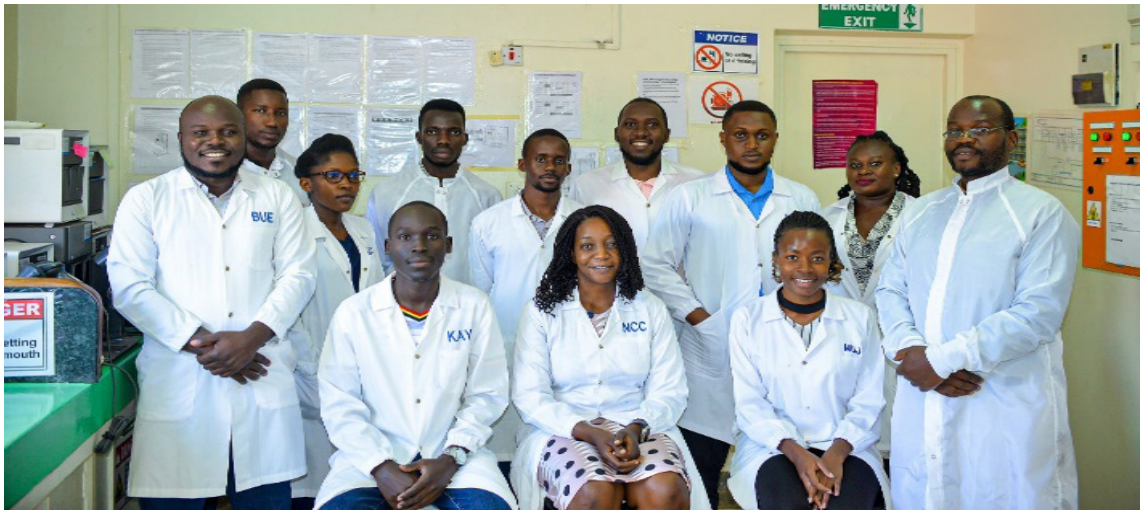
Dr. William Ssengooba

Senior Research Fellow/ Research Scientists William Ssengooba holds an Erasmus Mundus Ph.D. in Molecular Microbiology from the Universities of Amsterdam (Academic Medical Centre), the Netherlands, and Barcelona, Spain with 2 years of laboratory training at the Institute of Tropical Medicine (ITM), Antwerp, Belgium. He has over 15 years of experience working and leading projects and training grants relating to TB and HIV in Africa and has published over 70 peer-reviewed articles and book chapters.



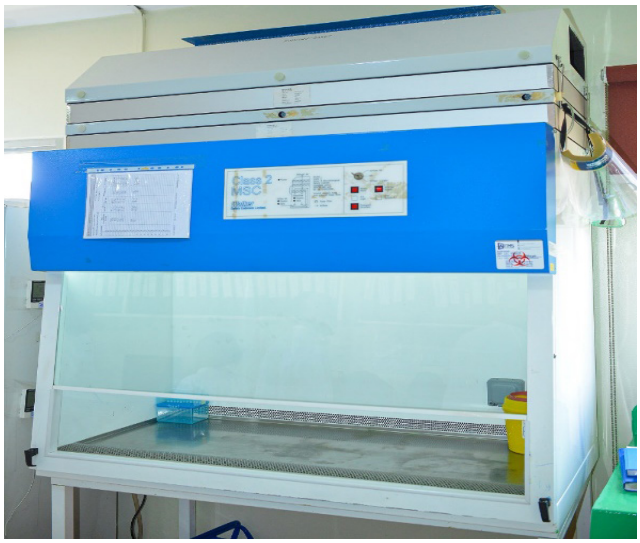
Ms. Garmine Nakayita, Quality Assurance Manager, Molecular Micro bacteriology (BSL) Laboratory

Germin Nakayita, a seasoned laboratory professional with a Bachelor's degree from Makerere University, boasts over a decade of experience in ensuring quality assurance in biomedical laboratory settings. Currently serving as a Laboratory Quality Assurance Officer at MakCHS Mycobacteriology (BSL3) Laboratory and Mycobacteriology BSL3 Lab at Makerere University, she excels in upholding safety and quality standards. As a Laboratory Consultant with Lab System Strengthening Limited, she enhances healthcare quality through expert guidance in laboratory systems



The technical team behind the success of Mycobacteriology Laboratory

Equipment for preserving samples



Biological Safety Cabinet

Mr. Eric Bagumira

Immunology and Molecural Biology Laboratory

The Genomics, Molecular Biology, and Immunology Lab at MakBRC serve as a hub for cutting-edge research in molecular biology, genomics, and immunology. Research activities in this lab encompass a wide range of projects aimed at understanding the molecular mechanisms underlying diseases, developing novel diagnostic tools, and advancing immunological research. Some ongoing projects include:

- Investigation of gene expression patterns in various diseases.
- Development of molecular assays for early disease detection.
- Characterization of immune responses to pathogens and vaccines.
- Exploration of genetic factors influencing disease susceptibility.
- Evaluation of novel immunotherapies and vaccine candidates.

The lab's state-of-the-art equipment and expertise enable researchers to conduct high-throughput genomic analyses, gene expression profiling, next-generation sequencing, and immunological assays. By combining genomics, molecular biology, and immunology approaches, the lab contributes to advancing knowledge in these fields and translating research findings into clinical applications.

The Immunology laboratory is one of largest Laboratory in Uganda. They offer the following services; Elisa Tests, CRPHIV, HSC-2, Toxoplasmosis, Rubella, CMV HBs Ag and HPV laboratory tests and analyses.

With support from MakBRC, the Immunology Laboratory has significantly expanded its testing capabilities, offering a wide range of assays crucial for disease diagnosis, monitoring, and research. These include ELISA tests for various pathogens such as HIV, CMV, HPV, and COVID-19, as well as specialized tests like QuantiFERON TB for tuberculosis detection. The laboratory also conducts serological tests for diseases like rubella and syphilis, ensuring comprehensive diagnostic coverage. Additionally, the Immunology Laboratory offers advanced assays such as cytotoxicity assays, flow cytometry, cell sorting, and cell and tissue culture, enabling in-depth research and analysis of immune responses. Furthermore, the implementation of luminex assays, multiplexing, and whole blood assays demonstrates MakBRC's commitment to enhancing immunological research and healthcare delivery, ultimately contributing to improved diagnostics and patient care.

Dr. Rose Nabatanzi, Manager, Immunology Laboratory

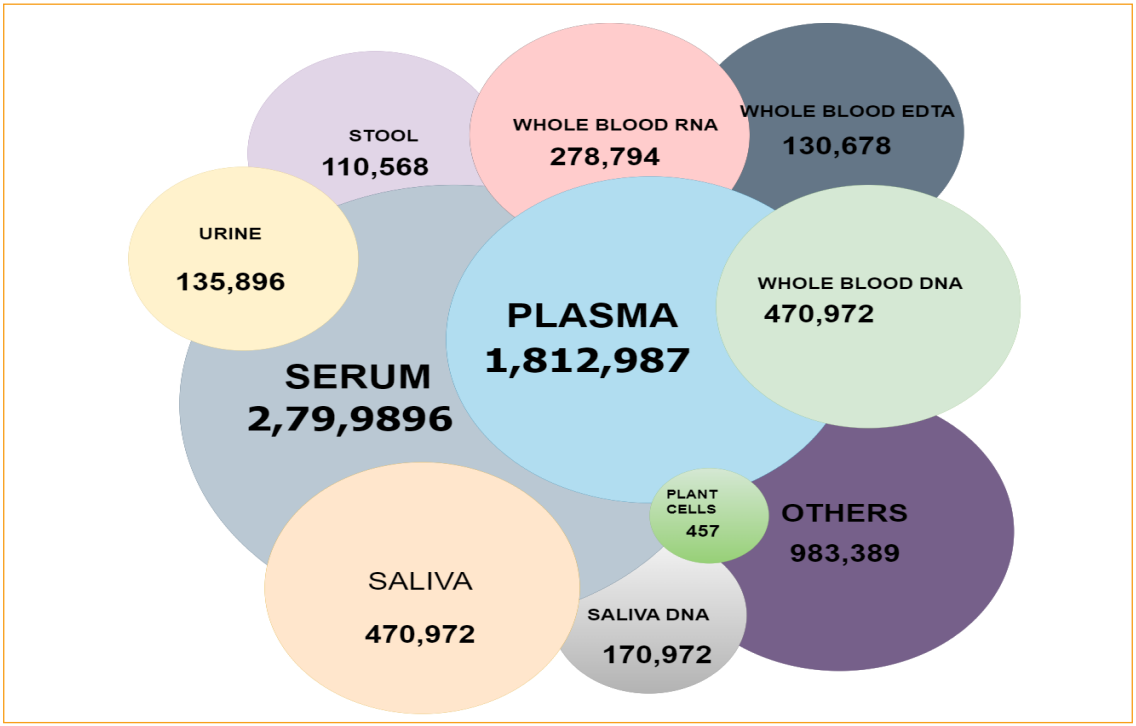
Dr. Rose Nabatanzi is currently a lecturer in the department of Immunology and Molecular Biology. She is also the laboratory manager of the Immunology laboratory of MakCHS. She has 17 years of experience in biomedical HIV research and academia. She is interested in conducting translational research in Immunology of infectious diseases particularly HIV and its co-infections. She holds the European & Developing Countries Clinical Trials Partnership (EDCTP) career development award that is looking at the characteristics of the HIV latent reservoir among HIV infected individuals within the IDI HIV treatment Cohort. She would like to explore potential drivers of immune activation and inflammation looking at the role played by the HIV latent reservoir among long term antiretroviral therapy (ART) treated people. She is focusing on utilizing her research experience to answer questions relevant to improvement of HIV treatment outcomes, remission and cure.


Luminex 200


BECKMAN COULTER
CytoFLEX LX

9.4 Integrated Biorepository of H3Africa Uganda (IBRH3AU): The Integrated Biorepository

Supranational Biorepository



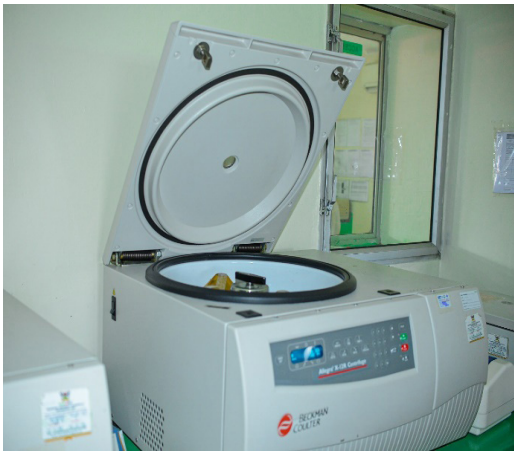
This serves as a centralized facility for the collection, processing, storage, and distribution of biological specimens for research purposes, with a focus on genomic studies and biomedical research in Africa. The biorepository adheres to international standards and best practices for bio banking, ensuring the integrity, traceability, and confidentiality of biological samples and associated data. Some ongoing projects include:

- Establishment of bio banking protocols and standard operating procedures (SOPs) for sample collection, processing, and storage.
- Development of informatics infrastructure for sample tracking, inventory management, and data integration.
- Biorepository services such as sample accessioning, aliquoting, quality control, and sample distribution to researchers.
- Capacity building initiatives in bio banking and bio specimen science through training workshops and educational programs.
- Collaboration with national and international research consortia to facilitate access to high-quality bio specimens for genomic research and precision medicine initiatives.

The Integrated Biorepository is equipped with state-of-the-art facilities for sample handling, storage, and analysis, including automated sample storage systems, liquid handling robots, and laboratory information management systems (LIMS). By promoting collaboration, data sharing, and research transparency, the biorepository accelerates scientific discoveries and contributes to improved health outcomes for diverse populations in Africa and beyond.

Sharley Melissa Aloyo,
IBRH3AU Laboratory Manager

Sharley Melissa Aloyo, with a diverse background in immunology, molecular biology, and biotechnology, manages critical research projects at IBRH3AU. Her meticulous approach ensures smooth project execution, while her active participation in research, education, and international conferences reflects her commitment to advancing scientific knowledge and fostering collaboration for improved healthcare outcomes.



Mr. Kamulegeya Rodgers Kamulegeya, Head, Biorepository Laboratory

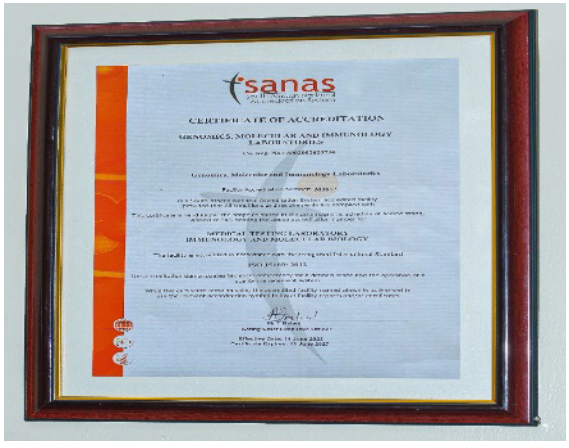
Mr. Kamulegeya, is a dedicated Biomedical Scientist at Makerere University in Uganda, with wealth of experience and passion for advancing healthcare through research, education, and innovation. With a solid background in biomedical science, he is committed to contributing to the understanding and treatment of various medical conditions, ultimately improving the quality of life for individuals both locally and globally.

The technical staff behind Integrated Bio- repository of H3Africa Uganda (IBRH3AU

Freezers at the Bio-repository Laboratory

Sample capacity : 1,710,400 - Current sample number: 1,199,520

A Staff at the Bio-repository Laboratory



Integrated Bio- repository of H3Africa Uganda obtained the above certificate in 2023

9.5 Integrated Biorepository of H3Africa Uganda (IBRH3AU) status quo

Personnel and Operations:

- The lab processes and stores samples for researchers, including DNA, serum, and plasma.
- They have five lab technicians for sample processing and a team for data management.
- Students come for laboratory rotations and bio banking courses, where they are taught basic principles and procedures.

PhD Students and Projects:

- The lab has supported several PhD students, with three known students currently and others graduated.
- They collaborate with students on projects like Cuff Chain, with ongoing support *for PhD research.*

Research Projects and Publications:

- They have published a paper on bio banking and supported projects advancing tissue and organ bio banking.
- Collaboration with other institutions like UC Berkeley, Rutgers University, and Case Western University has led to collaborative research and student exchanges.

Service Delivery and Feedback:

- The laboratory provides services like sample processing, storage, and shipment, with positive feedback from researchers.
- They also offer training in sample collection and standard operating procedure (SOP) development.

Strategic Planning:

- The main objective is sustainability, with plans to ensure financial sustainability through client agreements.
- Goals include maintaining sample quality, obtaining accreditation, and engaging with A2LA for accreditation by the end of the year.

9.6 HPLC/Mass Spectrophotometer Laboratory

The HPLC/Mass Spectrophotometer Laboratory supported by MakBRC stands as a beacon of advanced research capabilities within the Department of Immunology and Molecular Biology at MakCHS. Equipped with the state-of-the-art Shimadzu HPLC-MS/MS 8040, this facility enables comprehensive proteomic and multi-proteomic investigations, offering researcher's unparalleled opportunities for in-depth analysis. Its versatility allows for the examination of proteins and their modifications across a diverse array of sample types, ranging from cell lysates to clinical specimens and microorganisms. Through the utilization of this cutting-edge equipment, researchers at MakBRC have made significant strides in elucidating protein expression patterns, post-translational modifications, and interactions, thereby advancing our understanding of cellular biology, disease mechanisms, and biomarker discovery in various biomedical and clinical contexts. The laboratory's contributions to research are invaluable, providing critical insights that pave the way for innovative discoveries and potential breakthroughs in healthcare and medicine.

One of the key equipment at HPLC/Mass Spectrophotometer Laboratory

BIOCHEMISTRY DEPARTMENT

MakBRC actively supports the Biochemistry Department by providing access to state-of-the-art analytical instruments and high-quality reagents critical for conducting advanced biochemical assays and metabolic research. This support enhances the department's capacity to investigate disease biomarkers and unravel metabolic disorders with precision.

In addition to infrastructural support, MakBRC facilitates continuous professional development through skills enhancement workshops for both staff and students, fostering a culture of research excellence and innovation.

The Centre also ensures regular servicing and maintenance of all biochemistry laboratory equipment, thereby sustaining optimal operational functionality and uninterrupted research activities.

Through these strategic interventions, MakBRC contributes significantly to advancing biochemical research, strengthening academic training, and supporting the discovery of novel diagnostic and therapeutic targets within the biomedical sciences.

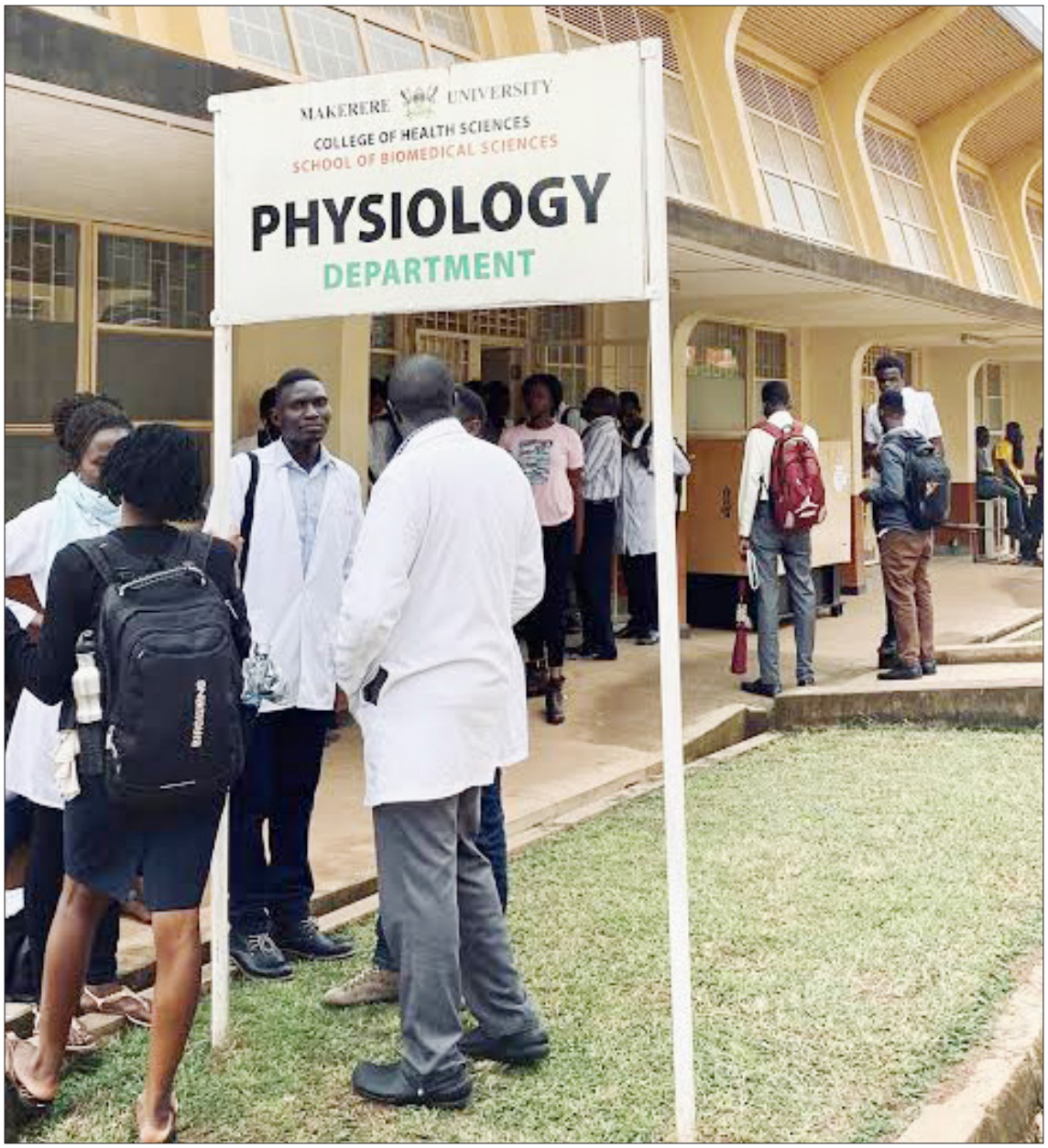
State of the Art Medical Biochemistry Department

PHYSIOLOGY DEPARTMENT

MakBRC supports the Physiology Department by providing access to cutting-edge equipment essential for precise physiological measurements and experimental research. The Centre ensures the regular maintenance and servicing of all physiological instruments, guaranteeing consistent and reliable functionality to facilitate uninterrupted research activities.

In addition, MakBRC fosters interdisciplinary research collaborations and offers targeted training sessions to deepen understanding of physiological mechanisms relevant to health and disease.

This comprehensive support highlights MakBRC's crucial role in strengthening biomedical research and education across the School of Biomedical Sciences.



Photographic impressionnof the physiology Department supported by MakBRC

MAKERERE UNIVERSITY **HOSPITAL SUPPORTED BY MakBRC**

Hematology analysis by a staff at Makerere University Hospital Supported by MakBRC

The Makerere University Biomedical Research Centre (MakBRC) stands as a testament to Makerere University's commitment to advancing healthcare through cutting-edge research and innovation. Established as an integral component of Makerere University Health Services (MakHS), MakBRC has emerged as a cornerstone institution driving groundbreaking research initiatives and fostering collaborations across disciplines.

Since its inception, MakBRC has achieved significant milestones, leveraging the expertise and resources of Makerere University Hospital, the Dental School, and satellite clinics at Kabanyolo and Jinja campuses. One of its primary achievements lies in spearheading pioneering research endeavors aimed at addressing pressing health challenges facing Uganda and the broader African continent.

MakBRC has played a pivotal role in advancing medical knowledge and healthcare practices, with a particular emphasis on infectious diseases, non-communicable diseases, maternal and child health, and emerging health threats. Through robust research programs, MakBRC has contributed valuable insights into disease prevention, diagnosis, and treatment strategies, thereby enhancing healthcare delivery and outcomes.

Moreover, MakBRC serves as a hub for training the next generation of healthcare professionals and researchers, fostering a collaborative environment that nurtures talent and promotes interdisciplinary approaches to address complex health issues. By actively engaging with students, faculty, and external partners, MakBRC ensures the translation of research findings into tangible interventions that benefit communities and contribute to global health advancements.

Under the oversight and management of Makerere University College of Health Sciences (MakCHS), MakBRC harnesses the collective expertise of CHS departments and professionals, further enriching its research endeavors and ensuring alignment with the university's broader healthcare objectives. As part of MakCHS, MakBRC embodies the institution's longstanding legacy of excellence in training, research, and healthcare practices, cementing its reputation as a leading biomedical research center in Africa.

MakBRC's achievements therefore underscore its pivotal role in advancing healthcare through research, training, and collaborative partnerships, thereby fulfilling its mandate to address the evolving health needs of Uganda and beyond.

MakBRC supports Makerere University Hospital with professional services

INTERNAL
MONITORING UNIT

Section B: Key Achievements (July 2023 – June 2024)

Major activities undertaken: Included

During the 2023/2024 reporting period, the Internal Monitoring Unit strengthened oversight of MakBRC-managed projects by conducting 23 monitoring visits, including initial, interim, and close-out assessments. These visits ensured compliance with protocols, SOPs, Good Clinical Practice (GCP), Good Clinical Laboratory Practice (GCLP), and regulatory requirements from bodies such as IRBs, UNCST, and the National Drug Authority. The unit reviewed laboratory operations for adherence to ISO 15189:2022 standards, tracked regulatory approvals and agreements, and guided corrective and preventive actions that enhanced study quality and integrity. Notably, all active projects maintained valid agreements, and Principal Investigators acknowledged improvements in data integrity and documentation practices. The unit also supported the inaugural Bioethics Conference in November 2024, strengthening collaboration with the Bioethics Resource Centre. Despite challenges such as delayed approvals and coordination gaps, strategies like centralized tracking and proactive follow-ups improved compliance. Priorities for 2024/2025 include expanding GCP/GCLP trainings, enhancing monitoring coverage, and fostering sustainability.

Monitoring Visits Summary (2023–2024)

Type of visit	Number of projects
Initial visits	7
Interim follow-up visits	9
Complete monitoring (Initial visit, interim visit and close-out visit)	3
Unmonitored projects	4
Total monitored projects	23

Figure **2**: Sarah Nabwire, Head Internal Monitoring

Figure **1**: Faridah Mugala, Internal Monitor

MAKBRC RESEARCH AND INNOVATIONS TEAM

Dr. Ivan Mwebaza,
Head of Research and Innovations

Ms. Ritah Ndyamuhaki,
Grants officer-Pre Award

Ms. Rachel Nabacwa,
Grants officer Award

Ms. Sheillah Ansiima,
Grants Officer-Post Award

RESEARCH AND **INNOVATIONS** AT MAKBRC

The Research and Innovations Unit of MakBRC was established to spearhead and foster research and innovations at the organization. Specifically, the unit is tasked with the following objectives:

1. To promote a conducive environment for research and innovation at MakBRC by proposing new policies and strategies as well as revising the existing ones.

2. To promote all activities related to research and innovations, including collaborations pre-award, award and post award processes, R&D, commercialization, clinical trials/field testing, and scale up.

3. To identify and secure sources of income including through proactive approaches to funders and partners, responding to tenders and calls for proposals, and through the development of products and services.

Within the above mandate, the unit hereby reports on the status of research, innovations in context of achievements, and milestones for a period between January 2024 to December 2024.

In order to streamline and to establish structures for research and innovations, we are glad to highlight some of the milestones we have reached in the year 2024.

Staff recruitment: The Head of Research and innovations (Dr. Ivan Mwebaza) and the Grants officer (Ms. Ritah Ndyamuhaki) were recruited. These officers were duly issued with terms of reference and assumed offices. Later the unit was boosted with two more staff members (Ms. Rachel Nabacwa and Ms. Sheillah Ansiima, both Grants officers)

Constitution of the Research and Innovations Board committee:

This committee was duly constituted, and includes:

Dr. Robert Kalyesubula (Chair), Department of Physiology, School of Biomedical Sciences, Makerere University.

Dr. Grace Acan, Department of Medical Microbiology, School of Biomedical Sciences, Makerere University.

Prof. Jerrold Ellner, Rutgers New Jersey Medical School

Prof. Nelson Sewankambo, Department of Medicine, School of Medicine, Makerere University and Prof. W Henry Boom. School of Medicine, Case Western Reserve University, Cleveland Ohio

The committee held the inaugural meeting on March 12th, 2024, and members received their terms of reference. We are grateful to this committee for having spearheaded the drafting and review of the Grants and Research Manual for MakBRC. This manual provides guidelines and procedures for Requesting, Accepting, and Administering Grants, Contracts and Cooperative Agreements.

Grants application portals subscription: The unit activated, subscribed or renewed MakBRC grant application credentials with NIH, European Commission, EDCTP, The Wellcome Trust, and MRC. This implies MakBRC pre-qualifies as an administrator and host institution for grants and projects funded by those institutions.

Establishment of a grants Office: The Unit acquired a physical grants office and procured furniture and computer. This has facilitated direct interactions between the Research officers at MakBRC and potential investigators.

Tripartite MoU between Roslin Institute, Makerere University Center for Health and Population Research: Roslin Institute is an animal sciences research institute under the University of Edinburgh. The MoU is a vehicle that will establish an intersection across public health, Biomedical Sciences, and One health at the Iganga-Mayuge Health and Demographic Surveillance Site.

Collaborative agreement between Centers for AIDS Research/Uganda-Case Western Reserve University Collaboration: This research partnership is aimed at improving HIV reservoir and drug resistance research at Makerere University. Under this collaboration, research lab was set up at Kasangati site and equipped with state-of -the art Digital Droplet PCR, the second of its kind in Uganda.

Hosted the Director of HIV Therapeutics NIH/NIAID, Dr. Peter Kim: This visit aimed boosting collaboration between NIH/NIAID and MakBRC.The Director gave a talk about the grant opportunities at NIH for Ugandans. The talk was attended by 32 participants on zoom/online and 21 were physically present. This increased MakBRC visibility, and researchers attached more utility to our work.

Research and Training Collaboration with Empresa de Servicios Ingenieros Especializados, Cuba (ESINES) and Biocubafarma Group of Companies from Havana, Cuba: These two organizations are at the forefront of Biomarker discovery and R&D will support MakBRC through skills and knowledge transfer as it establishes its own R&D portfolio.

Research Administration Training for Grants Staff: MakBRC and its partner Rutgers University sponsored two Grants officers to attend an NIH/NIAID research administration workshop that was held at Nairobi, Kenya. This training equipped our staff with skills and expertise on how to manage NIH grants. They also benefited from networking since this training attracted Research administrators all over East Africa.

Grants Application Support rendered to investigators.

Our grants team has continued to support investigators with pre-award, award and post-award processes of grants application.

We routinely searched, aggregated and curated Request for Funding Applications, Notice of Funding Opportunities and Calls for Applications and distributed them to potential applicants, including MakCHS community on weekly basis.

We supported investigators through proposal writing process and submission. Our grants team provided Letters of Support, Statement of available equipment and facilities and prepared Budgets. We also suggested and contacted potential collaborators.

Investigators utilized our expertise in negotiations during award processes, contract extensions, and sub-contract determinations.

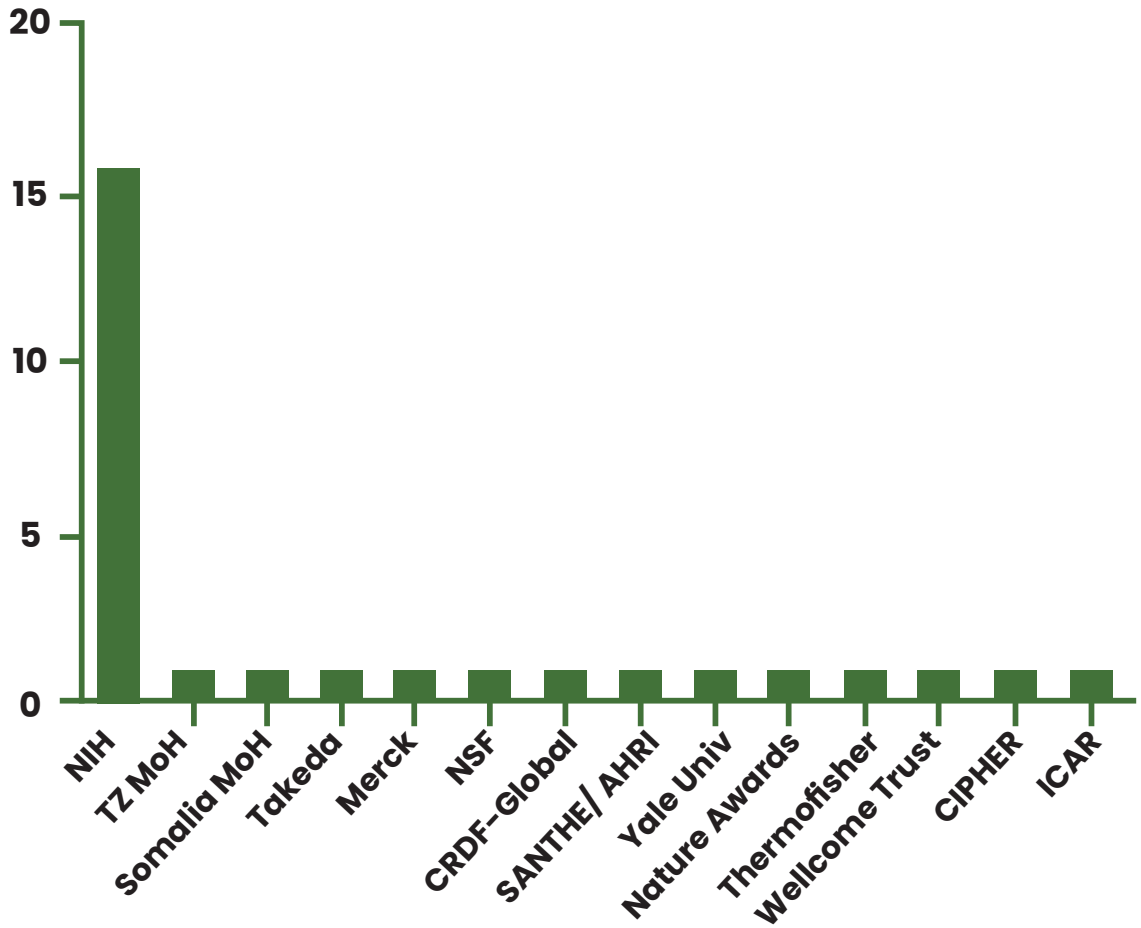
We trained investigators in effort reporting Financial Management and Grant Compliance, grant close out and preparation for Audit.

We supported investigators through drafting a grants tracking tool. This tool helps researchers to manage and compare budgets against deliverables and milestones, keep up to date with ethical and regulatory requirements and to write scientific and financial reports.

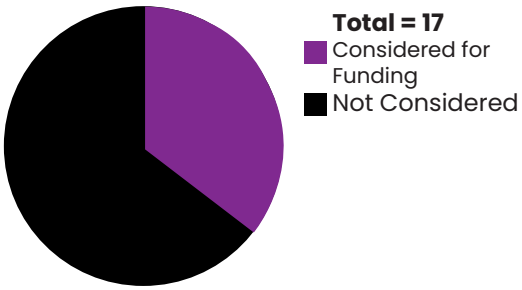
Research and Grant Analytics for the year 2024.

MaKBRC continued to assist scientists with grant applications and implementation in 2024. A total of 28 funding requests were submitted to 12 different funding agencies, with the majority (fifteen) being directed to NIH. Fourteen of these submissions listed MaKBRC as the lead applicant, while the rest involved MaKBRC as a subrecipient or implementing partner. By December 31st, 2024, seventeen applications had received final decisions, out of which six were approved for funding, resulting in a 37.5% success rate.

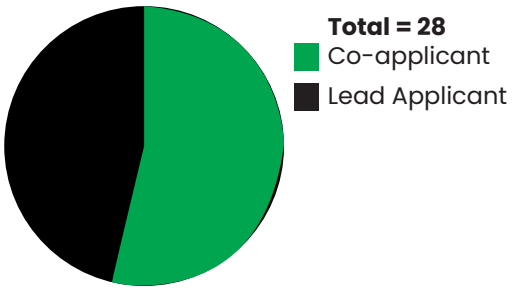
Request for funding applications made during a period Jan-Dec 2024.



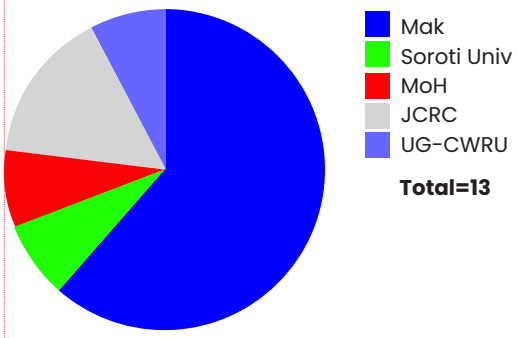
Received Decisions by Dec.2024



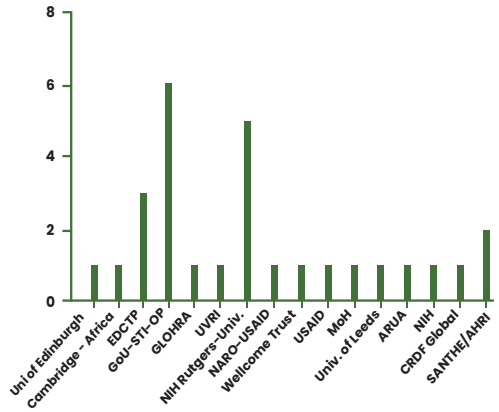
MakBRC as Lead or Collaborative



PI primary institution (Lead Applicant)



Summary of Active Projects by the end of 2024



R&D and innovations status for the year 2024

MaKBRC continued to support the translation of research findings into tangible products. We highlight some of the R&D technologies that MakBRC supported in 2024.

The KeySuite Laparoscopic: MakBRC is partnering with various collaborators to translate research into tangible devices that are affordable and responsive to the healthcare challenges unique to Uganda and LMICs . Among these, we are partnering with Makerere University Biomedical Engineering (MakBME) to develop affordable laparoscopy with reduced cost and complexity. Images can be displayed on laptop computer so it can be used off-grid. The plan is to develop a GMP certified facility so that this device is mass produced, assembled and certified from MakBRC/MakBME facilities.

The LeVe CPAP System: MakBRC is partnering with MakBME to develop affordable, plug-in-and-use CPAP device.

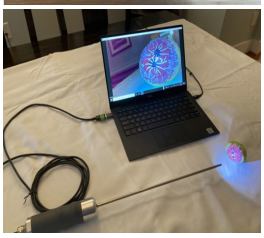
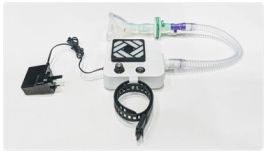
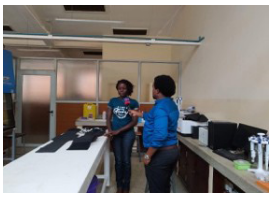
Gastroschisis silo bags: MakBRC and MakBME are developing gastroschisis silo bags using locally available O-rings.

PPH belt: This a battery-powered self-administered postpartum hemorrhage arresting belt that is being developed by MakBRC and MakBME.

EPED strip: This lateral flow test relies on two blood enzymes activin and inhibin to predict and diagnose pre-eclampsia. It is being developed by MakBRC and MakBME.

The Aflascanner: This a lateral flow test for field testing of aflatoxins in agricultural produce. It is being developed in collaboration with National Agricultural Research Organization and USAID. This device is already undergoing field trials.

R&D projects at MakBRC

R&D Project	Description	
The KeySuite Laparoscopic Device(MakBRC/Mak BME/, Duke University, University of Maryland)	The Wellcome Leap Project is supporting the KeySuite Device which is a laparoscopic system designed for low- and middleincome countries (LMICs).	 
The LeVe CPAP System MakBRC/MakBME/U niversity of Leeds	The CPAP device is a device that is designed to provide continuous airflow under pressure in the airway	
Gastroschisis silo bags MakBRC/MakBME	To increase access to gastroschisis silo bags through using locally available materials in LMICs	 
PPH belt to solve postpartum hemorrhage MakBRC/MakBME	Battery powered Mechanical belt to arrest PPH	
EPED strip to diagnose preeclampsia MakBRC/ MakBME	Point of care for pre-eclampsia	
The Aflascanner (MakBRC, NAROUSAID)	Field strip test for aflatoxins	

Innovations that are Responsive to Societal Needs

The innovation agenda at MAKBRC is guided by the imperative to generate solutions that are directly responsive to Africa's pressing health challenges. Over the past year, MAKBRC has advanced several diagnostic platforms and research tools that not only fill critical local gaps but also have the potential to shape global health diagnostics. These innovations span both validated products and early-phase diagnostic prototypes, forming a robust pipeline for future commercialization and public health impact.

1. Validated and Ready-to-Deploy Kits

MaKGen RNA Extraction Kit

A flagship product of MAKBRC's diagnostic development arm, the MaKGen kit addresses the limitations of cost and supply chain dependency associated with imported RNA extraction reagents. Validated for performance in molecular testing workflows, MaKGen is compatible with both manual and automated platforms. Its affordability and high-quality yield position it as a cornerstone for molecular surveillance of RNA viruses, including influenza, SARS-CoV-2, and hemorrhagic fevers.

SARS-CoV-2 Proficiency Testing Panels (in partnership with SRL)

To strengthen national diagnostic preparedness, MAKBRC collaborated with the Uganda National SRL to develop standardized proficiency testing panels for SARS-CoV-2. These panels provide essential external quality assurance tools for both public and private laboratories, ensuring diagnostic accuracy and harmonization across the country. This innovation contributes to sustainable diagnostic quality systems in the post-pandemic era.

Taq Polymerase and Phusion Enzyme Kits

In a strategic move to localize essential molecular reagents, MAKBRC has developed in-house Taq DNA polymerase and high-fidelity Phusion enzyme kits. These enzymes underpin PCR diagnostics and are critical for research workflows. Local production reduces dependency on imports, lowers costs, and enhances supply stability, especially during global supply disruptions.

2. Prototypes in Phase I Validation: Foundations for the Future

MAKBRC's pipeline includes several diagnostic kits currently undergoing Phase I validation. Though not yet market-ready, these products mark significant strides in building national capacity for innovation-led epidemic response and disease control.

EBOV-Kit: Ebola Rapid Detection Kit

Developed in response to Uganda's vulnerability to Ebola outbreaks, the EBOV-Kit is a rapid, field-deployable molecular diagnostic tool aimed at early detection and containment. With minimal infrastructure requirements, it is designed for use in district-level health facilities and mobile laboratories. Validation studies are ongoing, with a focus on sensitivity, specificity, and time-to-result.

Mycobacterium tuberculosis Detection Kit

This kit targets one of the deadliest infectious diseases in the region—tuberculosis. The diagnostic platform is based on nucleic acid amplification techniques and optimized for resource-limited settings. It aims to improve case detection, reduce diagnostic delays, and support Uganda's TB elimination strategy.

STDS-AgX-COVID-19 Multiplex Diagnostic Kit

This innovative multiplex platform enables simultaneous detection of COVID-19 and key sexually transmitted pathogens. The kit is envisioned for use in syndromic testing where overlapping clinical presentations often lead to misdiagnosis. By integrating multiple targets into a single test, this tool aims to improve diagnostic precision and rationalize use of clinical resources.

Strategic Note: While these three kits are still in early validation stages, they have established a scalable model for diagnostic innovation. The infrastructure, expertise, and regulatory engagement built around them have created a **sustainable pipeline for future diagnostic products** and potential regional manufacturing partnerships.

NOTE: Although these are yet to be on the market, they have laid a foundation for diagnostic discovery and created a pipeline for commercialization.

Aflasafe-Field Aflatoxin Detection kits

Research Capacity Building at MakBRC for the year 2024

A collaborative agreement between Centers for AIDS Research/Uganda-Case Western Reserve University Collaboration results into establishment of HIV Reservoir and Drug Resistance lab at Kasangati. Reservoir Drug Resistance lab Kasangati Site

MaKBRC has formed a collaborative agreement with UG-CWRU to promote basic sciences research and innovation through training and infrastructure development. The collaboration recognizes the importance of basic sciences research in disease detection, prevention and control, treatment, and surveillance, which has often been overlooked in developing regions due to the complex infrastructure and training required. Consequently, this collaboration aims to address this gap by developing joint laboratory infrastructure and specialized post-doctoral training facilities at the Kasangati Site.

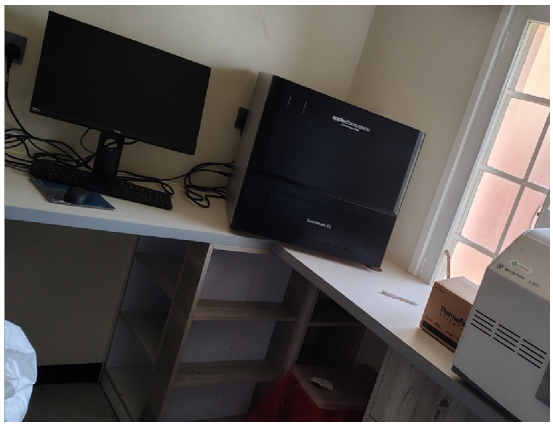


Figure 1: Drug Resistance lab.

Figure 2: From left, Dr. Fred Kyeyune, Dr. Immaculate Nankya (both from UGCWRU) and Dr. Ivan Mwebaza (MakBRC) stand in front of a Liquid Nitrogen plant that is going to be installed at Kasangati lab. This plant has capacity of 120ltrs of liquid Nitrogen per day

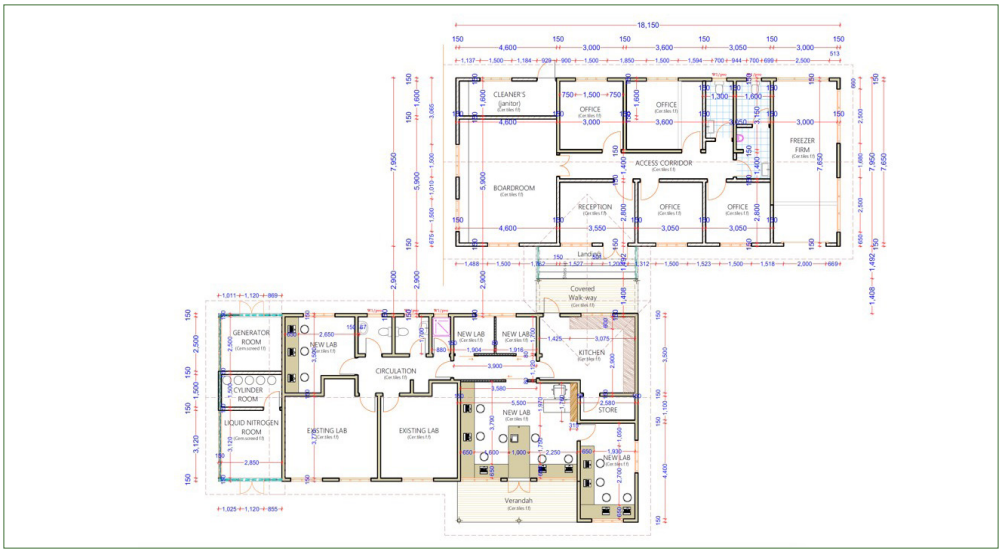


Figure 3: Architectural plan for the remodeled Kasangati building that will house various labs and a post-doc lounge labs and a post-doc lounge

With support from the Center for AIDS Research at Case Western Reserve University, the collaboration has established an HIV Reservoir and Drug

Figure 4: Artistic impression of the remodeled Kasangati building

Figure 5: Prof. Boom and the Head of Kasangati labs brainstorming on the design of the lab space

Figure 6: CFAR and MakBRC team in front of one of the structures that is up for renovations

Resistance lab equipped with digital droplet PCR technology. This facility will be the first of its kind at Makerere University, focusing on the basic science of HIV drug resistance. The next goal of the collaboration is to renovate and remodel the Kasangati building to provide more space for immunology, cell imaging and microscopy, and proteomics labs, as well as post-doctoral offices. This collaboration has already identified two post-docs who are going to be funded under its HIV/TB cure program. These post-docs will be the pioneer users of these facilities.

Dr. Peter Kim the Director of HIV Therapeutics at NIH/NIAID visits MakBRC.

Figure 7:Dr. Peter Kim, MD , Director of the Therapeutics Research Program at the Division of AIDS, National Institute of Allergy and Infectious Diseases (NIAID)

Figure 8: The Director giving an insightful and interactive presentation to senior and young scientists at the College of Health Sciences, Makerere University.

On the 18th June 2024, Makerere University Biomedical Research Center (MakBRC) was honored to host a distinguished guest Dr. Peter Kim, MD who is the Director of the Therapeutics Research Program at the Division of AIDS, National Institute of Allergy and Infectious Diseases (NIAID). His visit provided a unique opportunity for the research community of the College of Health Sciences-Makerere University to engage with one of the leading experts in the field of HIV/AIDS research. In lead with the Managing Director and Head of Research and Innovations MakBRC, Professor Moses Joloba and Dr. Ivan Mwebaza respectively, together with other scientists and researchers, Dr. Peter Kim was given a tour around MakBRC and the College of Health Sciences. Among the so many facilities he visited were the Genomics, Molecular and Immunology Laboratories and the IBRH3AU Biorespository.

Dr. Peter Kim was over joyed to see the so much infectious disease research being undertaken and the available resources to support the same. To close off the visit, Dr. Peter Kim gave a presentation; sharing valuable insights into the latest advancements in therapeutic research, emphasizing groundbreaking approaches and ongoing efforts to combat infectious diseases globally.

Figure 9: Dr. Peter Kim, together with the Managing Director MakBRC Professor Moses Joloba

The presentation was very interactive and interesting as it saw so many vibrant committed young scientists engaging with the Director Therapeutics Research Program at the Division of AIDS, NIAID. We as MakBRC commit to fostering collaborations with esteemed institutions like NIAID to enhance our understanding of infectious diseases and accelerate progress towards effective treatments. We extend our heartfelt thanks to Dr. Peter Kim, Director of the Therapeutics Research Program at the Division of AIDS, National Institute of Allergy and Infectious Diseases (NIAID) for his visit and enlightening presentation and looking forward to future collaborations that will further enrich our research endeavors.

Figure 10: The Director visiting some of the laboratories.

Figure 11: A brief discussion with the Dean School of Biomedical Sciences, Dr. David Kateete

Figure 12: Dr. Mwebaza engaging Dr. Kim during a lab visit

MakBRC hosts scientists from Empresa de Servicios Ingenieros Especializados, Cuba (ESINES) and Biocubafarma Group of Companies from Havana, Cuba.

On 6th/Oct/2024 MakBRC hosted a team of scientists from STI-OP and Cuba at the Biomarker Discovery lab, located at Kasangati. The guests were welcomed by Dr. Ivan Mwebaza, the Head of Research and Innovations at MakBRC who emphasized the importance of this collaboration towards research, training, R&D, and skills transfer between Uganda and Cuba. The guests, led by Dr. David Seruka and Ms Leah Nabirye from STI-OP. Scientists from Empresa de Servicios Ingenieros Especializados, Cuba (ESINES) were led by Dr. Figueroa Fernandez; Business and Development Director, Dr.Portuondo Vazquez; Deputy Director, and Dr. Sardina Fagundo; the Chief Architect & Project Manager.

The team also included Dr. Leyva Hernandez who is the Commercial & Business Director at Biocubafarma Group of Company. Dr. Palenzuela Diaz represented Immuneesayo Centre in Havana. The Ugandan embassy in

Havana was represented by Dr. Komakech Paul who is an administrative assistant and also a Medical Intern at Medical University of Havana.

Figure 13: Visitors during a tour of the Biomarker Discovery lab

The purpose of this visit was to identify facilities and capital investments that can foster synergies and collaborative Research and Development (R&D) between MakBRC, STIOP, and Cuban institutions. The Biomarker Discovery lab is one of such facilities since it is a place where basic and translational analysis of target biological markers can be performed, and prototypes validated before they progress to commercial production. Currently the lab is equipped with a high-performance liquid chromatograph-triple quadrupole mass spectrometer (LC/MS/MS) with mass range of m/z 2 to 2000. The guests commended MakBRC for its commitment to developing capacity and championing innovations that reduce and mitigate disease burdenin Uganda and beyond. They reiterated the importance of such high-tech research labs in preventing, detecting and responding to healthcare challenges and biologic threats.

Figure 14: High-performance liquid chromatograph-triple quadrupole mass spectrometer (LC/MS/MS) at the Biomarker Discovery lab, Kasangati

A collaborative Memorandum of Understanding (MoU) was signed to support skills and technology transfer in the fields of biomarker discovery, research and development (R&D), and commercialization. We expect the first team of Ugandan trainees to visit Havana by the end of 2025.

Tripartite MoU between Roslin Institute, MUCHAP, and MakBRC creates research intersection across public health, Biomedical Sciences, and One health.

MakBRC, Roslin Institute at the University of Edinburgh, and Makerere University Center for Health and Population Research (MUCHAP) formed a collaborative agreement with aim of harnessing capabilities and pooling resources in order to tackle the challenges of One health. The collaboration acknowledges the laboratory and clinical research infrastructure at MaKBRC, the track record of Roslin Institute in animal sciences research, and the Health and Demographic Surveillance expertise of MUCHAP. This consortium is tasked with conducting research and training with a 360 degree approach that encompasses animal, human, and community health.

Fig.15:MakBRC and MUCHAP team on a tour at Roslin Institute MakBRC staff attend Research Administration Training organized by NIH/NIAID.

MakBRC together with Rutgers University sponsored two staff member of MakBRC.

Fig.16: MakBRC grants receiving certificate after training

Fig.17: MakBRC grants officer and project finance officer attending the training (Front row)

Grants unit to attend NIH Grant Management Workshop at KEMRI in Nairobi, Kenya.

This training that took place from December 3-6, 2024, and covered NIH grant administration, financial management, and compliance. Our staff acquired skills and expertise in pre- and post-award processes, financial accountability, and best practices in grant oversight. Specifically, they were trained on how to interpret NIH funding calls, application processes, aligning objectives with funder priorities, JIT reporting. They also learnt Budgeting and allowable costs, financial reporting (FFR), compliance and audits, Monitoring grant activities, RPPR preparation, budget modifications, sub-award management, Importance of final reports, building research capacity through strengthened internal systems, training, and digital tools.

MakBRC Hosts the Bioethics Resource Centre

In 2024, the Bioethics Resource Centre of Makerere University commenced operations under the auspices of MakBRC. This initiative aligns with MakBRC's objective of integrating ethical considerations into biomedical research and practice. Conceived by Professor Nelson Ssewankambo and currently led by Associate Professor Erisa Mwaka, the Centre benefits from MakBRC's structural and institutional support, ensuring that bioethics is embedded within biomedical research frameworks.

Fig.18: Prof. Sewankambo and Dr. Dominic Lali from UNESCO at the Bioethics Conference

Fig.19: Dr. Ivan Mwebaza represented the Managing Director-MakBRC at the Bioethics Conference

Fig.20: One of the participants at the Bioethics Conference

MakBRC supported the Centre in organizing its inaugural Makerere Bioethics Conference (MakBC 2024) at Hotel Africana in Kampala, Uganda. The conference, themed "Contemporary Issues in Bioethics Practice," attracted participants from various African countries, including Rwanda, Ghana, Nigeria, and Botswana, as well as attendees from the United States. This diverse gathering facilitated a rich exchange of ideas and fostered cross-border collaborations.

The Centre will serve as a multidisciplinary hub dedicated to:

1. Education and training (building capacity across undergraduate, graduate, and inservice training in medical/clinical and research ethics)

2. Ethics consultation services
3. Research (developing and implementing national and international research programs in the field of bioethics)
4. Advisory services (advising health providers and policymakers on policy matters, including resource allocation and healthcare rationing)

MaKBRC to Host the Uganda Society of Human Genetics and Bioinformatics (USHGB)

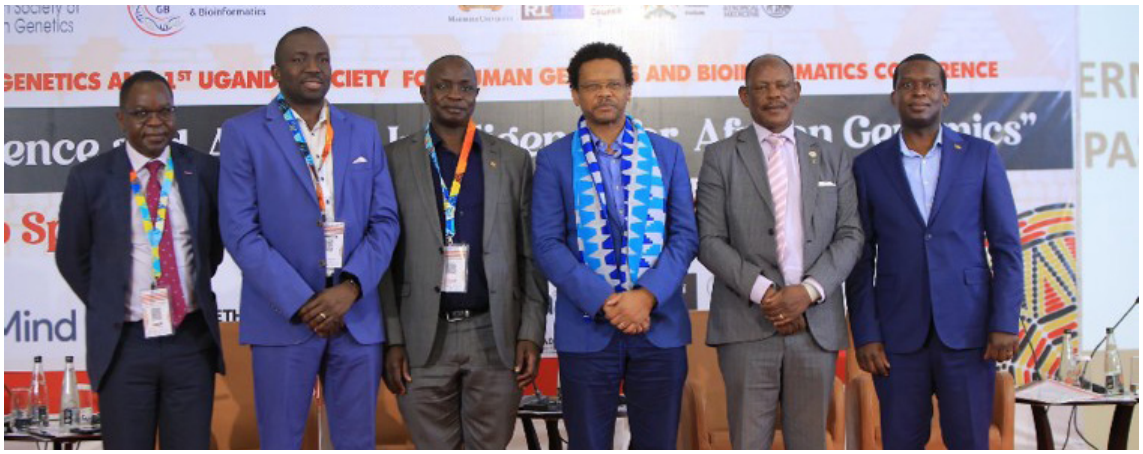


Fig.21: MakBRC Managing Director, Prof. Joloba and the Vice Chancellor, Prof. Nawange at the genomics Conference

The Uganda Society of Human Genetics and Bioinformatics (USHGB) was inaugurated as Uganda's national professional society for genomics and bioinformatics during the 15th African Society of Human Genetics (AfSHG) Conference and the 1st USHGB Conference in February 2025. MakBRC was chosen to host and support this new society, with Makerere University's Vice Chancellor, Professor Barnaba Nawangwe, attending the event.The proposal to host the conference and launch USHGB was made by Dr. Christopher Kintu of MakBRC and was chosen for its clarity, strategic vision, and alignment. This initiative demonstrated MakBRC's dedication to enhancing genomic dialogue in Africa. MakBRC also facilitated young researchers and graduate students to present their work, receive mentorship, and network with experts from across the continent and beyond.

Fig.22: Dean, School of Biomedical Sciences at the Genomics Conference.

PARTNERSHIP AND COLLABORATIONS

MakBRC stakeholders interacting with partners

The Makerere University Biomedical Research Centre (MakBRC) is deeply committed to fostering strategic partnerships and collaborations that advance the frontiers of biomedical science. Through deliberate and sustained engagement with leading researchers, academic institutions, public health agencies, and non-governmental organizations—both locally and internationally—MakBRC has positioned itself as a hub for scientific excellence, innovation, and impactful knowledge translation.

These partnerships are instrumental in enhancing research capacity, accelerating technological transfer, and promoting interdisciplinary approaches to complex health challenges. They facilitate the sharing of expertise, infrastructure, and data, while also creating robust platforms for training the next generation of scientists. In this way, MakBRC not only contributes to global scientific discourse but also ensures that biomedical innovations are contextually relevant to the needs of African communities.

The following collaborations exemplify the breadth and strategic scope of MakBRC's engagement:

3.1 H3Africa Biorepositories – Nigeria and South Africa

In collaboration with the NIH-funded H3Africa Biorepositories in Nigeria and South Africa, MakBRC strengthens genomic research and biobanking capabilities across the African continent. This partnership enhances sample quality management, harmonizes protocols, and fosters a continental network for genomic data sharing—critical for large-scale studies addressing Africa-specific disease burdens.

3.2 Neuro-GAP Project

The Neuropsychiatric Genetics of African Populations (Neuro-GAP) project represents a major collaborative effort to investigate the genetic and environmental underpinnings of neurological and psychiatric disorders. MakBRC contributes both biobanking expertise and clinical data infrastructure, supporting research that aims to transform diagnosis, risk assessment, and therapeutic strategies for neurological diseases in African populations.

3.3 TB-SPEED Project

Through its engagement in the TB-SPEED project, MakBRC actively supports global and regional efforts to reduce the burden of tuberculosis, especially among children. The Centre's biobanking resources and laboratory capacity are leveraged to facilitate cutting-edge diagnostic research, contributing to faster, more accurate TB detection and effective treatment monitoring.

3.4 The African Severe Asthma Project

This partnership advances the understanding of severe asthma within African populations. By collecting and analyzing biological specimens, MakBRC and its partners aim to identify predictive biomarkers, characterize disease subtypes, and ultimately inform the development of targeted and more effective therapeutic interventions.

3.5 Uganda Christian University

The collaboration with Uganda Christian University promotes research excellence and capacity building in biomedical sciences. This partnership strengthens interdisciplinary linkages, facilitates joint academic programs, and creates opportunities for both faculty and students to engage in high-impact research projects.

3.6 Child and Family Foundation, Uganda

In partnership with the Child and Family Foundation, Uganda, MakBRC undertakes research and advocacy initiatives targeting child and family health outcomes. Collaborative programs address pressing health challenges affecting vulnerable populations, with a focus on evidence-based interventions and sustainable community health improvements.

3.7 East African Geohealth HUB

As a member of the East African Geohealth HUB, MakBRC contributes to an interdisciplinary research network addressing environmental health risks in the region. This partnership fosters data sharing, environmental surveillance, and public health policy engagement, with a view to safeguarding environmental sustainability and improving community health resilience.

3.8 Oregon Health and Science University (OHSU), USA

The collaboration with OHSU in Portland, Oregon, harnesses complementary expertise in biobanking, genomics, and translational research. Joint projects emphasize innovation in biomedical technologies and personalized medicine, aiming to enhance health outcomes for diverse and underserved populations.

3.9 Makerere University Centre for Health and Population Research (MUCHAP)

Through its work with MUCHAP, MakBRC supports epidemiological studies, public health interventions, and health systems research. This collaboration facilitates the generation of evidence for policy and practice, thereby strengthening health service delivery and population health management in Uganda.

3.10 AFRICA SUITCASELAB

MakBRC's partnership with AFRICA SUITCASELAB focuses on the development of portable diagnostic technologies and point-of-care solutions for resource-limited settings. This collaboration emphasizes innovation, technology transfer, and capacity building, with the goal of bridging diagnostic gaps in remote and underserved communities.

3.11 Global Health Uganda

The partnership with Global Health Uganda integrates research, training, and advocacy to address key health challenges, with particular emphasis on health equity and the needs of vulnerable populations. Together, the institutions strive to implement innovative health solutions that can be scaled across Uganda and beyond.

3.12 Bio-Repository Collaborations

The MakBRC Bio-Repository maintains formal Memoranda of Understanding (MOUs) and active collaborations with the following partners:

- H3Africa Biorepositories in Nigeria and South Africa (through the NIH)
- Neuro-GAP Project
- TB-SPEED Project
- The African Severe Asthma Project
- Uganda Christian University
- Child and Family Foundation, Uganda
- East African Geohealth HUB
- Oregon Health and Science University (Portland, Oregon)
- Makerere University Centre for Health and Population Research (MUCHAP)
- AFRICA SUITCASELAB
- Global Health Uganda

3.13 Photographic Impressions of Partners

A curated photographic portfolio captures the vibrancy and diversity of MakBRC's collaborative engagements. These images illustrate joint fieldwork activities, laboratory exchanges, partner institution visits, training sessions, and community health interventions—underscoring the Centre's dynamic role in global scientific and public health networks.

MakBRC's partnerships and collaborations are not mere affiliations—they are strategic, purpose-driven alliances designed to generate meaningful scientific breakthroughs and sustainable health solutions. By integrating local knowledge with global expertise, MakBRC continues to advance biomedical research, strengthen health systems, and contribute to improved health outcomes in Uganda, Africa, and the world.

3.14 Photographic impression of the partners

Collaboration with BIOCUBAFARMA - CUBA


EASTERN AFRICA GeoHealth Hub
HEI
Makerere University
College of Health Sciences
SCHOOL OF PUBLIC HEALTH
State of Global Air Quality - Trends and Patterns
Thursday
28th March 2024
12:30-2:00 PM
East Africa Time
SPEAKER
Dr. Pallavi Pant PhD
Head of Global Health
Health Effects Institute,
Boston
MODERATOR
Dr. Lynn Atuyambe PhD
Associate Professor & PI
Eastern Africa GeoHealth Hub
Makerere University School of
Public Health (MakSPH)
Davis Lecture Theatre (DLT),
College of Health Sciences, Mulago Hill
zoom
Zoom Registration Link
Register in advance for this meeting:
https://bit.ly/Airpollutionandhealth
PM2.5


MakBRC
MAKERERE
UNIVERSITY BIOMEDICAL
RESEARCH CENTER
PROJECT HOUSE
THE GREEN HOUSE
+256 414541830
www.mak.ac.ug

4

COMMUNITY SERVICE AND ENGAGEMENT

Over 2 million COVID-19 Tests were done at MakBRC facilities	
• Makerere University - Community (Free of Charge) • Uganda Parliament • FUFA • State House • NWSC • URA • NITA-U	Mpox Testing (ongoing) Paternity Testing Ebola Survey

At MakBRC, community service and engagement are integral to our mission of advancing biomedical research while directly contributing to the health and well-being of the populations we serve. We recognize that sustainable health solutions require active collaboration with communities, ensuring that interventions are relevant, accessible, and impactful.

Our approach to community engagement is guided by principles of inclusivity, empowerment, and co-creation, whereby community members are not merely beneficiaries but active partners in shaping health priorities and interventions. By integrating community perspectives into research design, implementation, and dissemination, MakBRC ensures that our scientific endeavors are responsive to real-world needs.

4.1 Flagship Initiatives

Health Education and Awareness Campaigns

MakBRC conducts targeted health education programs in partnership with local schools, community centers, and healthcare facilities. These campaigns address pressing public health topics such as:

- Preventive healthcare and early detection strategies
- Infectious disease awareness and control
- Promotion of healthy lifestyles and nutrition

The programs employ interactive workshops, community dialogues, informational sessions, and resource distribution to build health literacy and empower individuals to make informed health choices.

4.2 Community Health Screenings and Clinics

To improve access to essential health services, MakBRC organizes free or subsidized health screening events, offering:

- Screening for non-communicable and communicable diseases
- Immunization drives
- Basic medical consultations and referrals

These outreach activities target underserved and remote populations, bridging healthcare access gaps while fostering trust between healthcare providers and community members.

4.3 Capacity Building and Training

MakBRC is committed to strengthening local healthcare systems by investing in human capital. Through partnerships with community-based organizations, universities, and health institutions, we deliver:

- Professional development workshops for healthcare workers
- Research training for early-career scientists
- Mentorship programs for community leaders and volunteers

These efforts aim to build sustainable expertise that remains embedded within the community, long after specific projects conclude.

4.4 Commitment to Impact

MakBRC's community service initiatives are designed to:

- Promote health equity by addressing barriers to care
- Increase health literacy for informed decision-making
- Strengthen community resilience through knowledge and resource sharing

By engaging communities as equal stakeholders, MakBRC ensures that the outcomes of biomedical research translate into tangible, lasting benefits for the populations most in need.

FINANCE & STRATEGIC MANAGEMENT

The Finance and Strategic Management Department at MakBRC remains central to ensuring prudent stewardship of resources, strengthening financial sustainability, and supporting the organization's strategic objectives. With a disciplined and structured approach, the department consistently delivers accurate, timely, and relevant financial information to management, donors, and stakeholders—thereby enabling informed decision-making and reinforcing institutional accountability.

5.1 Key Achievements in the 2023/2024 Financial Year

5.1.1 Strengthening Financial Reporting and Accountability

During the reporting period, the department successfully prepared comprehensive and fully compliant financial statements to facilitate rigorous external auditing. This process ensured transparency, met statutory requirements, and maintained the organization's high standard of accountability. The department's proactive engagement with external auditors enabled a smooth audit process, further enhancing stakeholder confidence.

5.1.2 Strategic Financial Advisory Services

The department provided evidence-based financial advisory services to management and program leads. These advisory inputs were instrumental in budget formulation, performance monitoring, and strategic resource allocation, ensuring that financial decisions were well-informed, forward-looking, and aligned with MakBRC's long-term growth trajectory.

5.1.3 Internal Control and Governance Enhancements

In line with our governance and compliance objectives, the department operationalized and updated the Financial Management Manual, incorporating robust policies that strengthen internal controls and mitigate financial risks. Collaboration with the Procurement Unit ensured adherence to the Public Procurement and Disposal of Public Assets (PPDA) Act and other statutory frameworks—reinforcing transparency, value-for-money principles, and regulatory compliance.

5.1.4 Project and Grant Management Excellence

The Finance and Strategic Management team continued to deliver high-quality grant administration and donor reporting. Through meticulous record-keeping, financial monitoring, and timely submission of accountability reports, the department sustained strong relationships with funding partners. This facilitated seamless implementation of donor-funded projects and bolstered MakBRC's reputation for financial integrity.

5.1.5 Strengthened Donor and Partner Relationships

The department maintained productive collaborations with reputable funding organizations, including FIND, Texas Children's Hospital, and the National Institutes of Health (NIH). By meeting stringent financial reporting standards and donor compliance requirements, we safeguarded trust, fostered credibility, and positioned MakBRC for future funding opportunities.

5.1.6 Commitment to Strategic Financial Stewardship

The Finance and Strategic Management Department remains steadfast in its commitment to:

- Promoting transparency and accountability across all financial operations.
- Optimizing resource allocation to achieve maximum programmatic impact.
- Enhancing governance frameworks for sustainable institutional growth.

Through these strategic measures and collaborative engagements, MakBRC has reinforced its position as a financially responsible and strategically focused research institution, well-prepared to meet the demands of an evolving biomedical research environment.

5.2 Financial information for annual report

	FY 23/24 (UGX)	FY 22/23 (UGX)	FY 21/22 (UGX)
INCOME			
Restricted income	12,092,485,822	4,390,967,703	6,945,187,819
Unrestricted income	5,566,123,531	6,588,857,813	14,082,312,558
Total income	**17,659,399,353**	**10,979,825,516**	**21,021,500,377**
EXPENDITURE			
Capital costs	-	-	39,383,419
Programme costs	3,867,455,991	4,339,829,208	7,327,891,760
Staff costs	6,203,203,301	6,892,909,244	4,680,023,939
Administration costs	5,239,073,494	1,511,979,186	1,112,836,737
Total expenditure	**15,309,732,786**	**12,744,717,638**	**13,160,135,855**
Surplus/(deficit) for the year before tax	**2,349,666,567**	**(1,764,892,122)**	**7,867,364,522**

HUMAN RESOURCE AND STAFF SUPPORT

1. Overview of Human Resource Support

During the 2023–2024 reporting period, the Makerere University Biomedical Research Centre (MakBRC) sustained its commitment to attracting, supporting, and retaining a highly skilled workforce. The Centre supported a total of 179 staff members across diverse functional areas, encompassing core administration, laboratories, and project teams.

These staff members represent a multidisciplinary blend of expertise critical to MakBRC's mission of advancing biomedical research and innovation. The workforce composition includes, but is not limited to:

- Core Administrative Staff – providing leadership, operational management, and institutional coordination.
- Laboratory Teams – including laboratory managers, technologists, and biomedical technicians ensuring smooth operations and high-quality outputs.
- Research and Project Personnel – comprising research assistants, Principal Investigators, quality officers, and subject matter specialists driving cutting-edge studies and translational research.

This diverse human capital base is the cornerstone of MakBRC's operational and scientific excellence, fostering collaboration, capacity building, and knowledge generation.

2. Visual Representation of Staff Distribution

To promote transparency and enhance stakeholder engagement, MakBRC has developed a visual representation of its staff distribution between administrative and laboratory functions. This representation illustrates the balanced allocation of human resources across the Centre, highlighting the integrated approach between research operations and institutional management.

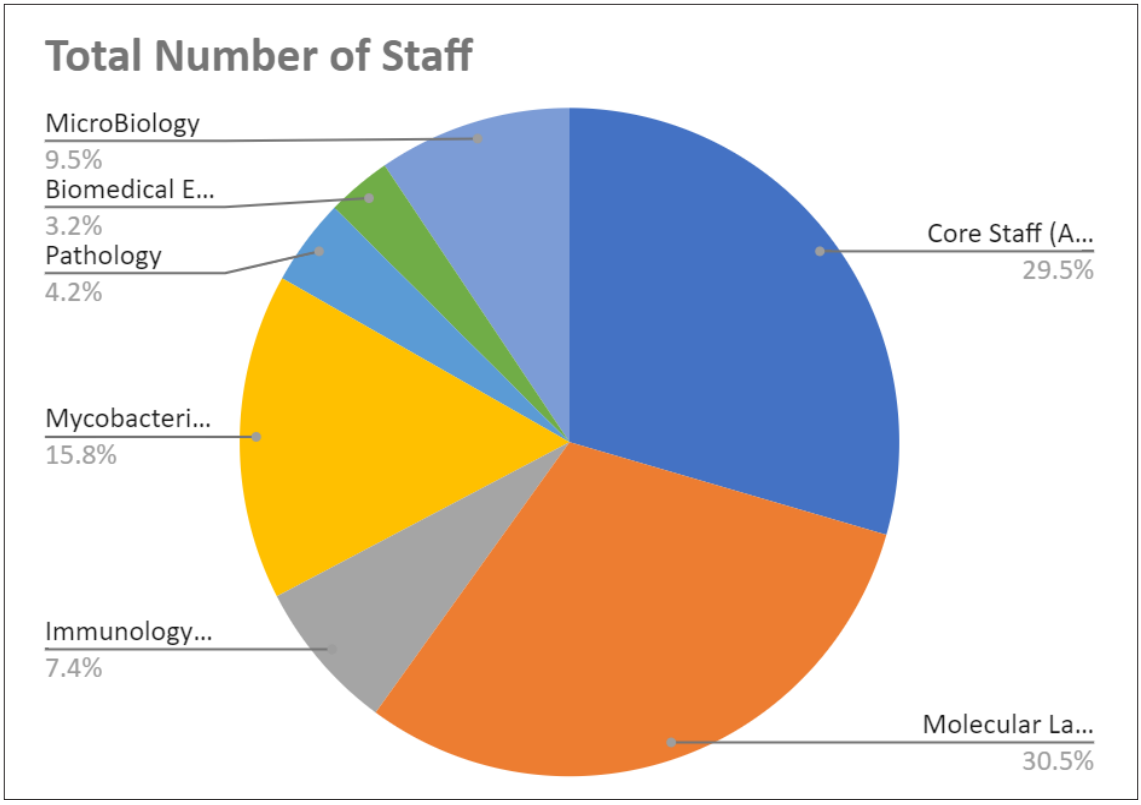
Figure 16.1: Staff Distribution at MakBRC (2023–2024)

A proportional infographic showing the percentage distribution between Administration, Laboratory Operations, and Project Teams will be presented in the Annex.

3. The Main Entrance to MakBRC Headquarters

A symbol of the Centre's accessibility and institutional presence, the main entrance to the MakBRC headquarters stands as a welcoming gateway for collaborators, students, and stakeholders committed to the advancement of biomedical sciences.

4. Visual Representation of Staff Distribution in MakBRC: Administration and Laboratories.



5. PROJECTS SUPPORTED BY MAK BRC

MakBRC supports a diverse array of projects aimed at advancing research, innovation, and invention in various fields. These projects encompass a wide range of initiatives, including FEND TB, FEND NoD PED, PREGART, Halting, TBRU, TB COMBO, CBS, COVBANK, and LIIT. Each project is tailored to address specific challenges and opportunities within its respective domain, contributing to scientific progress and societal development. For instance, FEND TB focuses on pioneering research in tuberculosis, while FEND NoD PED explores innovative solutions for pediatric non-communicable diseases. Additionally, the Welcome LEAP program, coupled with the key suite device, seeks to foster innovation and empower individuals in the healthcare sector. Through its support for these projects, MakBRC plays a pivotal role in driving research excellence, fostering innovation, and addressing pressing global challenges.

PUBLICATIONS

1. Abd El Wahed, Ahmed, Paul Kadetz, Julius Boniface Okuni, Yakhya Dieye, Michael Frimpong, George Olusegun Ademowo, Sheila Makiala-Mandanda et al. "An African One Health network for antimicrobial resistance and neglected tropical diseases." *Nature Medicine* (2024): 1-2.

2. Nanyeenya, Nicholus, Damalie Nakanjako, Fredrick Makumbi, Gertrude Nakigozi, Fred Nalugoda, Godfrey Kigozi, Esther Nasuuna et al. "Effectiveness of intensive adherence counselling in achieving an undetectable viral load among people on antiretroviral therapy with low-level viraemia in Uganda." *HIV medicine* 25, no. 2 (2024): 245-253.

3. Kyobe, Samuel, Grace Kisitu, Savannah Mwesigwa, John Farirai, Eric Katagirya, Gaone Retshabile, Lesedi Williams et al. "Long-term non-progression and risk factors for disease progression among children living with HIV in Botswana and Uganda: A retrospective cohort study." *International Journal of Infectious Diseases* 139 (2024): 132-140.

4. Nanyeenya, Nicholus, Damalie Nakanjako, Fredrick Makumbi, Gertrude Nakigozi, Fred Nalugoda, Godfrey Kigozi, Esther Nasuuna et al. "Effectiveness of intensive adherence counselling in achieving an undetectable viral load among people on antiretroviral therapy with low-level viraemia in Uganda." *HIV medicine* 25, no. 2 (2024): 245-253.

5. Kyobe, Samuel, Grace Kisitu, Savannah Mwesigwa, John Farirai, Eric Katagirya, Gaone Retshabile, Lesedi Williams et al. "Long-term non-progression and risk factors for disease progression among children living with HIV in Botswana and Uganda: A retrospective cohort study." *International Journal of Infectious Diseases* 139 (2024): 132-140.

6. Mugisa, Gerald, and Adonia Kyakulaga. "CHALLENGES FACED BY VISUALLY IMPAIRED LEARNERS AMONG PATIENTS ATTENDING EYE HEALTH CARE SERVICES AT JINJA REGIONAL REFERRAL HOSPITAL. A CROSS-SECTIONAL STUDY." *SJ Ophthalmology Africa* 1, no. 1 (2024): 6-6.

7. Stuck, Logan, Eveline Klinkenberg, Nahid Abdelgadir Ali, Egbal Ahmed Basheir Abukaraig, Yaw Adusi-Poku, Zeleke Alebachew Wagaw, Razia Fatima et al. "Prevalence of subclinical pulmonary tuberculosis in adults in community settings: an individual participant data meta-analysis." *The Lancet Infectious Diseases* (2024).

8. Komakech, Kevin, Lydia Nakiyingi, Ashab Fred, Beatrice Achan, Moses Joloba, Bruce J. Kirenga, and Willy Ssengooba. "Effect of mixed Mycobacterium tuberculosis infection on rapid molecular diagnostics among patients starting MDR-TB treatment in Uganda." *BMC Infectious Diseases* 24, no. 1 (2024): 70.

9. Carratala-Castro, Lucia, Willy Ssengooba, Alex Kay, Sozinho Acácio, Joanna Ehrlich, Andrew R. DiNardo, Nosisa Shiba et al. "A stool based qPCR for the diagnosis of TB in children and people living with HIV in Uganda, Eswatini and Mozambique (Stool4TB): a protocol for a multicenter diagnostic evaluation." *BMC Infectious Diseases* 24, no. 1 (2024): 233.

10. Ssengooba, Willy, Achilles Katamba, James Sserubiri, Derrick Semugenze, Abdunoor Nyombi, Raymond Byaruhanga, Stavia Turyahabwe, and Moses L. Joloba. "Performance evaluation of Truenat MTB and Truenat MTB-RIF DX assays in comparison to gene XPERT MTB/RIF ultra for the diagnosis of pulmonary tuberculosis in

Uganda." *BMC Infectious Diseases* 24, no. 1 (2024): 190.

11. Kirenga, Bruce J., Jeremiah Chakaya, Getnet Yimer, George Nyale, Tewodros Haile, Winters Muttamba, Levicatus Mugenyi et al. "The burden of severe asthma in sub-Saharan Africa: Findings from the African Severe Asthma Project." *Journal of Allergy and Clinical Immunology: Global* 3, no. 2 (2024): 100209.

12. Kyobe, Samuel, Grace Kisitu, Savannah Mwesigwa, John Farirai, Eric Katagirya, Gaone Retshabile, Lesedi Williams et al. "Long-term non-progression and risk factors for disease progression among children living with HIV in Botswana and Uganda: A retrospective cohort study." *International Journal of Infectious Diseases* 139 (2024): 132-140.

13. Dill-McFarland, K.A., Simmons, J.D., Peterson, G.J., Nguyen, F.K., Campo, M., Benchek, P., Stein, C.M., Vaisar, T., Mayanja-Kizza, H., Boom, W.H. and Hawn, T.R., 2024. Epigenetic programming of host lipid metabolism associates with resistance to TST/IGRA conversion after exposure to Mycobacterium tuberculosis. *bioRxiv*, pp.2024-02.

14. Hong, Hyejeong, Kimberly A. Dill-McFarland, Jason D. Simmons, Glenna J. Peterson, Penelope Benchek, Harriet Mayanja-Kizza, W. Henry Boom, Catherine M. Stein, and Thomas R. Hawn. "Mycobacterium tuberculosis-dependent monocyte expression quantitative trait loci, cytokine production, and TB pathogenesis." *Frontiers in Immunology* 15 (2024): 1359178.

15. Laban, Muteebwa, Edith Joloba Nakku, Joan Nangendo, Dan Muramuzi, Faith Akello, Sabrina Kitaka Bakeera, Fred Collins Semitala, Aggrey S. Semeere, and Charles Karamagi. "Acceptability of short message service reminders as the support tool for PrEP adherence among young women in Mukono district, Uganda." *PLOS Global Public Health* 4, no. 1 (2024): e0002492.

16. Kudamba, A., Kasolo, J.N., Bbosa, G.S., Lugaajju, A., Wabinga, H., Niyonzima, N., Ocan, M., Damani, A.M., Kafeero, H.M., Walusansa, A. and Ssenku, J.E., 2023. Anticancer Medicinal Plants Used by the Natives in the Elgon Sub-region, Eastern Uganda.

17. Ngwili, N., Sentamu, D.N., Korir, M., Adriko, M., Beinamaryo, P., Dione, M.M., Kaducu, J.M., Mubangizi, A., Mwinzi, P.N., Thomas, L.F. and Dixon, M.A., 2023. Spatial and temporal distribution of Taenia solium and its risk factors in Uganda. *International Journal of Infectious Diseases*, *129*, pp.274-284.

18. Oboth, R., Kamabu, L.K., Lekuya, H.M., Bbosa, G.S., Sajatovic, M., Katabira, E., Kaddumukasa, M. and Galukande, M., 2024. Post-traumatic seizures and factors associated among adult patients with depressed skull fractures at Mulago National Referral hospital; cross-sectional study. *Epilepsy & Behavior*, *152*, p.109693.

19. Hahka, Taija M., Rebecca A. Slotkowski, Anum Akbar, Matt C. VanOrmer, Lawrence Fred Sembajwe, Abdul M. Ssekandi, Agnes Namaganda et al. "Hypertension Related Co-Morbidities and Complications in Women of Sub-Saharan Africa: A Brief Review." *Circulation Research* 134, no. 4 (2024): 459-473.

20. Kalyesubula, Robert, Nicola Wearne, Mary Kubo, Nadia Hussey, and Saraladevi Naicker. "HIV and Associated TB: A Lethal Association for Kidney Health?." In *Seminars in Nephrology*, p. 151470. WB Saunders, 2024.

21. Currin, Sean, Jaya A. George, Christian Holm Hansen, Saraladevi Naicker, Laurie Tomlinson, Amelia Crampin, Robert Kalyesubula et al. "Single-sample measured glomerular filtration rate in Malawi, South Africa, and Uganda." *Kidney international* (2024).

22. Nasuuna, Esther Michelle, Nicholus Nanyeenya, Davis Kibirige, Jonathan Izudi, Chido Dziva Chikwari, Robert Kalyesubula, Barbara Castelnuovo, Laurie A. Tomlinson, and Helen A. Weiss. "Prevalence of chronic kidney disease among young people living with HIV in Sub Saharan Africa: A systematic review and meta-analysis." *medRxiv* (2024): 2024-04.

23. Wijewickrama, E., Chanchlani, R., Wong, M., Kumar, V., Karam, S., Chen, T., Erikpo, U., Tannor, E., Calice-Silva, V., Anandh, U. and Bajpai, D., 2024. WCN24-758 RECOGNITION OF LOCAL INVESTIGATORS IN AUTHORSHIP OF COLLABORATIVE KIDNEY RESEARCH CONDUCTED IN LOW-AND LOWERMIDDLE INCOME COUNTRIES. *Kidney International Reports*, *9*(4), p.S55.

24. Kalyesubula, R. and Anandh, U., 2024, January. Introduction: Infections and the Kidney: An Area of Resurgent Concern. In *Seminars in Nephrology*. Elsevier.

25. Baluku, Joseph, Robert Kalyesubula, Majid Kagimu, and Ponsiano Ocama. "Frank Mulindwa, Irene Andia, Kevin McLaughlin, 3 Pritch Kabata."

26. Mayanja, Richard, Tafadzwa Machipisa, Opeyemi Soremekun, Abram Kamiza, Christopher Kintu, Allan Kalungi, Robert Kalyesubula et al. "First GWAS of Cystatin-C Kidney Function in Continental Africa Identifies Novel Loci & Refines Known Associations."

27. Lubwama, Margaret, David P. Kateete, George Katende, Edgar Kigozi, Jackson Orem, Warren Phipps, and Freddie Bwanga. "CTX-M, TEM, and SHV Genes in Escherichia coli, Klebsiella pneumoniae, and Enterobacter spp Isolated from Hematologic Cancer Patients with Bacteremia in Uganda." *Infection and Drug Resistance* (2024): 641-653.

28. Garcia-Basteiro, A.L., Ehrlich, J., Bonnet, M., Calnan, M., Graham, S.M., Hermans, S., Jarrett, A., Lewa, R., Mandalakas, A., Martinez, L. and Migliori, G.B., 2024. A Global Tuberculosis Dictionary: unified terms and definitions for the field of tuberculosis. *The Lancet Global Health*.

29. Carratala-Castro, Lucia, Willy Ssengooba, Alex Kay, Sozinho Acácio, Joanna Ehrlich, Andrew R. DiNardo, Nosisa Shiba et al. "A stool based qPCR for the diagnosis of TB in children and people living with HIV in Uganda, Eswatini and Mozambique (Stool4TB): a protocol for a multicenter diagnostic evaluation." *BMC Infectious Diseases* 24, no. 1 (2024): 233.

30. IRAGENA, Jean de Dieu, Achilles Katamba, Anandi Martin, Moses Joloba, and Willy Ssengooba. "Predisposing, enabling, and need factors influencing rapid uptake of the World Health Organization endorsed TB diagnostic technologies in Africa." *medRxiv* (2024): 2024-03.

31. Liu, Zhiwei, Yang Luo, Samuel Kirimunda, Murielle Verboom, Olusegun O. Onabajo, Mateus H. Gouveia, Martin D. Ogwang et al. "Human leukocyte antigen-DQA1* 04: 01 and rs2040406 variants are associated with elevated risk of childhood Burkitt lymphoma." *Communications Biology* 7, no. 1 (2024): 41.

32. Bosa, Henry Kyobe, Neema Kamara, Merawi Aragaw, Misaki Wayengera, Ambrose Talisuna, James Bangura, Henry G. Mwebesa et al. "The west Africa Ebola virus disease outbreak: 10 years on." *The Lancet Global Health* (2024).

33. Kyobe, Samuel, Grace Kisitu, Savannah Mwesigwa, John Farirai, Eric Katagirya, Gaone Retshabile, Lesedi Williams et al. "Long-term non-progression and risk factors for disease progression among children living with HIV in Botswana and Uganda: A retrospective cohort study." *International Journal of Infectious Diseases* 139 (2024): 132-140.

34. Aruhomukama, Dickson, Walusimbi Talemwa Magiidu, George Katende, Robert Innocent Ebwongu, Douglas Bulafu, Rajab Kasolo, Hellen Nakabuye, David Musoke, and Benon Asiimwe. "Evaluation of three protocols for direct susceptibility testing for gram negative-Enterobacteriaceae from patient samples in Uganda with SMS reporting." *Scientific Reports* 14, no. 1 (2024): 2730.

35. Olamijuwon, Emmanuel, Katherine Keenan, Martha F. Mushi, Catherine Kansiime, Eveline T. Konje, Mike Kesby, Stella Neema et al. "Treatment seeking and antibiotic use for urinary tract infection symptoms in the time of COVID-19 in Tanzania and Uganda." *Journal of Global Health* 14 (2024).

36. Aruhomukama, Dickson, Ronald Galiwango, Conor J. Meehan, and Benon Asiimwe. "Enhancing genomics and bioinformatics access in Africa: an imperative leap." *The Lancet Microbe* (2024).

37. Keenan, Katherine, Michail Papathomas, Stephen E. Mshana, Benon Asiimwe, John Kiiru, Andy G. Lynch, Mike Kesby et al. "Evidencing the Intersection of Environmental, Socioeconomic, Behavioural and Demographic Drivers of Antibacterial Resistance in East Africa." (2024).

38. Sado, Keina, Katherine Keenan, Areti Manataki, Mike Kesby, Martha F. Mushi, Stephen E. Mshana, Joseph R. Mwanga et al. "Treatment seeking behaviours, antibiotic use and relationships to multi-drug resistance: A study of urinary tract infection patients in Kenya, Tanzania and Uganda." *PLOS Global Public Health* 4, no. 2 (2024): e0002709.

39. Maldonado-Barragán, Antonio, Stephen E. Mshana, Katherine Keenan, Xuejia Ke, Stephen H. Gillespie, John Stelling, John Maina et al. "Predominance of multidrug-resistant bacteria causing urinary tract infections among symptomatic patients in East Africa: a call for action." *JAC-Antimicrobial Resistance* 6, no. 1 (2024): dlae019.

40. Maldonado-Barragán, A., Mshana, S.E., Keenan, K., Ke, X., Gillespie, S.H., Stelling, J., Maina, J., Bazira, J., Muhwezi, I., Mushi, M.F. and Green, D.L., 2024. JAC-Antimicrobial Resistance.

41. Kimbowa, Isaac Magulu, Moses Ocan, Jackson Mukonzo, Mary Nakafeero, Jaran Eriksen, Cecilia Stålsby Lundborg, Jasper Ogwal-Okeng, Celestino Obua, and Joan Kalyango. "The role of medicines and therapeutics committees structure in supporting optimal antibacterial use in hospitals in Uganda: A mixed method study." *Plos one* 19, no. 1 (2024): e0289851.

42. Mukonzo, Jackson K., Helen Byomire Ndagije, George Tsey Sabblah, Wangui Mathenge, David A. Price, and Thaddeus H. Grasela. "Expanding regulatory science: Regulatory complementarity and reliance." *Clinical and Translational Science* 17, no. 1 (2024): e13683.

43. Mulindwa, Benedict, Racheal P. Nalwoga, Brenda T. Nakandi, Erisa S. Mwaka, Laurence PJ Kenney, Louise Ackers, and Robert Tamale Ssekitoleko. "Evaluation of the current status of prosthetic rehabilitation services for major limb loss: a descriptive study in Ugandan Referral hospitals." *Disability and Rehabilitation* 46, no. 5 (2024): 969-978.

44. Muwonge, A., Bessell, P.R., Bronsvoort, M.B.D.C., Mugerwa, I., Mwaka, E., Ssebaggala, E., Wee, B.A., Kiayias, A., Mpyangu, C.M., & Joloba, M.L. (2025). Assessing the Impact of Haulage Drivers in Uganda's COVID-19 Delta Wave. *Journal of Epidemiology and Global Health, 15*, 54. https://doi.org/10.1007/s44197-025-00387-w

45. Ekusai-Sebatta, D., Namugenyi, R.S., Lakera, E., Mwaka, E., King, R., Lawrence, D.S., & Seeley, J. (2025). Ethical issues surrounding the implementation of long-acting injectable antiretroviral therapy in sub-

Saharan Africa. *International Health, 0*, 1–6. https://doi.org/10.1093/inthealth/ihaf016

46. **Mwaka, E.S., Bazzeketa, D., Mirembe, J., Emoru, R.D., Twimukye, A., & Kivumbi, A.** (2025). Barriers to and enhancement of the utilization of digital mental health interventions in low-resource settings: Perceptions of young people in Uganda. *Digital Health, 11*, 20552076251321698.

47. **Nabukenya, S., Waitt, C., Twimukye, A., Mushabe, B., Castelnuovo, B., Zawedde-Muyanja, S., Muhindo, R., Kyaddondo, D., & Mwaka, E.S.** (2025). Decision-making and role preferences for receiving individual pharmacogenomic research results among participants at a Ugandan HIV research institute. *BMC Medical Ethics, 26*(1), 23. https://doi.org/10.1186/s12910-025-01181-w

48. **Ali, J., Esmonde, K., Agudelo-Londoño, S., Jannat, Z., Shrestha, P., Torres-Quintero, A., & Mwaka, E.** (2025). "Digital benefit sharing" for non-communicable disease risk factor surveillance in low–and middle-income countries: implications for digital health governance. *Policy Studies*, 1–8. https://doi.org/10.1080/01442872.2025.2452437

49. **Nabirye, A.K., Munabi, I.G., Mubuuke, A.G., & Kiguli, S.** (2025). Emotional and psychological experiences of nursing students caring for dying patients: an explorative study at a national referral hospital in Uganda. *BMC Medical Education, 25*(1), 96.

50. **Ajalo, E., Mukunya, D., Nantale, R., Kayemba, F., Pangholi, K., Babuya, J., Langoya Akuu, S., Namiiro, A.M., Nsubuga, Y.B., Mpagi, J.L., Musaba, M.W., & Munabi, I.G.** (2025). Widespread use of ChatGPT and other Artificial Intelligence tools among medical students in Uganda: A cross-sectional study. *PLOS ONE, 20*(1), e0313776.

51. **Muwonge, A., Bessell, P.R., Bronsvoort, M.B.D.C., Mugerwa, I., Mwaka, E., Ssebaggala, E., Wee, B.A., Kiayias, A., Mpyangu, C.M., & Joloba, M.L.** (2025). Assessing the Impact of Haulage Drivers in Uganda's COVID-19 Delta Wave. *Journal of Epidemiology and Global Health, 15*, 54. https://doi.org/10.1007/s44197-025-00387-w

52. **Schultz, B., Agamah, F. E., Ewuoso, C., Madden, E. B., Troyer, J., Skelton, M., & Mwaka, E.** (2024). Webinar report: stakeholder perspectives on informed consent for the use of genomic data by commercial entities. *Journal of Medical Ethics, 50*(1), 57–61.

53. **Nabukenya, S., Waitt, C., Senyonga, R., Castelnuovo, B., Munabi, I. G., Kyaddondo, D., & Mwaka, E. S.** (2023). Research participants' preferences for individual results of pharmacogenomics research: A Case of a Ugandan HIV Research Institute. *Journal of Empirical Research on Human Research Ethics, 18*(4), 218–232.

54. **Mijumbi, A. O., Mugenyi, L., Nanfuka, M., Agaba, C., & Ochieng, J.** (2023). Regulation of community advisory boards during conduct of clinical trials in Uganda: a qualitative study involving stakeholders. *BMC Health Services Research, 23*(1), 119.

55. **Nankya, H.** (2024). Considerations for Community Engagement in Artificial Intelligence in Africa: A Review of Literature. *The Journal of Hospital Ethics, 10*(2), 45–52.

56. Ali, J., Esmonde, K., Agudelo-Londoño, S., Jannat, Z., Shrestha, P., Torres-Quintero, A., & Mwaka, E. (2025). "Digital benefit sharing" for non-communicable disease risk factor surveillance in low–and middle-income countries: Implications for digital health governance. *Policy Studies*, 1–18.

57. Barugahare, J., Kwagala, B., & Ochieng, J. (2024). Stakeholder's perspectives on rationing COVID-19 vaccines amidst scarcity: A qualitative study. *Archives*

of Microbiology and Immunology, 8, 23–34.

58. Kampi, R., Okello, C., Ochieng, J., & Mwaka, E. S. (2024). Informed consent in cancer clinical care: Perspectives of healthcare professionals on information disclosure at a tertiary institution in Uganda. *PLOS ONE*, 19(4), e0301586.

59. Nabukenya, S., Kyaddondo, D., Munabi, I. G., Waitt, C., Twimukye, A., & Mwaka, E. S. (2024). The role of community engagement in promoting research participants' understanding of pharmacogenomic research results: Perspectives of stakeholders involved in HIV/AIDS research and treatment. *PLOS ONE*, 19(4), e0299081.

60. Nabukenya, S., Kyaddondo, D., Twimukye, A., Munabi, I. G., Waitt, C., & Mwaka, E. S. (2024). 'It is a complex process, but it's very important to return these results to participants': Stakeholders' perspectives on the ethical considerations for returning individual pharmacogenomics research results to people living with HIV. *Research Ethics*, 20(2), 363–387.

61. Nalubega, S., Kutyabami, P., Twimukye, A., Kaawa-Mafigiri, D., & Sewankambo, N. K. (2024). Practices and attitudes of herbalists regarding informed consent in Uganda: A qualitative study. *BMC Medical Ethics*, 25(1), 106.

62. Nankya, H. (2024). Considerations for community engagement in artificial intelligence in Africa: A review of literature. *The Journal of Hospital Ethics*, 10(2), 85–85.

63. Nankya, H., Alibu, V. P., Wamala, E., Matovu, E., & Barugahare, J. (2024). Understanding of key considerations for effective community engagement in genetics and genomics research: A qualitative study of the perspectives of research ethics committee members and national research regulators in a low-resource setting. *Journal of Empirical Research on Human Research Ethics*, 19(4–5), 197–207.

64. Nankya, H., Wamala, E., Alibu, V. P., & Barugahare, J. (2024). Community engagement in genetics and genomics research: A qualitative study of the perspectives of genetics and genomics researchers in Uganda. *BMC Medical Ethics*, 25(1), 1.

65. Nanyonga, M. M., Kutyabami, P., Kituuka, O., & Sewankambo, N. K. (2024). Exploration of clinical ethics consultation in Uganda: A case study of Uganda Cancer Institute. *Research Square*. https://doi.org/10.21203/rs.3.rs-4319449/v1

66. Ochieng, J., Kwagala, B., Barugahare, J., Möller, M., & Moodley, K. (2024). Awareness, experiences and perceptions regarding genetic testing and the return of genetic and genomics results in a hypothetical research context among patients in Uganda: A qualitative study. *Journal of Medical Ethics*. https://doi.org/10.1136/jme-2023-109740

67. Owino, R. S., Sewankambo, N. K., Kituuka, O., & Kutyabami, P. (2024). Experiences and ethical issues during shared decision-making in healthcare at rural health facilities in Uganda: An exploratory qualitative study. *Research Square*. https://doi.org/10.21203/rs.3.rs-4308097/v1

68. Schultz, B., Agamah, F. E., Ewuoso, C., Madden, E. B., Troyer, J., Skelton, M., & Mwaka, E. (2024). Webinar report: Stakeholder perspectives on informed consent for the use of genomic data by commercial entities. *Journal of Medical Ethics*, 50(1), 57–61.

69. Twimukye, A., Nabukenya, S., Kawuma, A. N., Bayigga, J., Nakijoba, R., Asiimwe, S. P., … & Waitt, C. (2024). 'Some parts of the consent form are written using complex scientific language': Community perspectives on informed consent for research with pregnant and lactating mothers in Uganda. *BMC Medical Ethics*, 25(1), 149.

70. Mwaka, E. S., Bazzeketa, D., Mirembe, J., Emoru, R. D., Twimukye, A., & Kivumbi, A. (2025). Barriers to and enhancement of the utilization of digital mental health interventions in low-resource settings: Perceptions of young people in Uganda. *Digital Health*, 11, 20552076251321698. sbs.mak.ac.ug

71. Nabukenya, S., Waitt, C., Twimukye, A., Mushabe, B., Castelnuovo, B., Zawedde-Muyanja, S., Muhindo, R., Kyaddondo, D., & Mwaka, E. S. (2025). Decision-making and role preferences for receiving individual pharmacogenomic research results among participants at a Ugandan HIV research institute. *BMC Medical Ethics*, 26(1), 23.

72. Ssengooba, W., Musisi, E., Semugenze, D., Komakech, K., Ndema, M., Sekaggya, C. W., Adakun, S., Sloan, D. J., Katamba, A., Lamorde, M., Joloba, M., & Sabiiti, W. (2025). Performance evaluation of alternative bacteriological measures of response to MDR-TB therapy during the initial 16 weeks of treatment. *Research Square*.https://doi.org/10.21203/rs.3.rs-5834681/v1 PubMed

73. Muwonge, H., Nasimiyu, C., Barnabas, B., & Joloba, M. (2025). Severe long-term clinical sequelae among Sudan ebolavirus disease survivors 2 years post-infection. *Preprint*.

74. Lutaaya, P., Guido, O., Ssentamu, H. N., & Joloba, M. (2025). The development and implementation of a proficiency testing program for SARS-CoV-2 using dried tube specimens in resource-limited countries. *Article*.

75. Windels, E., Wampande, E. M., Joloba, M., & Stadler, T. (2024). Persons living with HIV are known to be at increased risk of developing tuberculosis (TB) disease upon infection with Mycobacterium tuberculosis (Mtb). *Full-text available*.

76. Kamulegeya, R., Kateete, D. P., Bagaya, B. S., & Joloba, M. (2024). Introduction: SARS-CoV-2 is a fatal disease of global public health concern.

77. Buwembo, W., Kamulegeya, A., Kalanzi, D., Munabi, I. G., & Mwaka, E. S. (2024). Periodontal health in a large cohort of Ugandans living with HIV: A cross-sectional study. *PLOS ONE*, 19(10), e0277254. https://doi.org/10.1371/journal.pone.0277254

78. Buwembo, W., Kamulegeya, A., Kalanzi, D., Munabi, I. G., & Mwaka, E. S. (2024). Oral normal variations and lesions in a Ugandan cohort of people living with Human Immunodeficiency Virus. *PLOS ONE*, 19(10), e0277255. https://doi.org/10.1371/journal.pone.0277255

79. Buwembo, W., Kamulegeya, A., Kalanzi, D., Munabi, I. G., & Mwaka, E. S. (2024). A comparison of oral bacteriome isolated from periodontal pockets of participants with or without diabetes mellitus in Uganda: A case-control study. *PLOS ONE*, 19(10), e0277256. https://doi.org/10.1371/journal.pone.0277256

80. Buwembo, W., Kamulegeya, A., Kalanzi, D., Munabi, I. G., & Mwaka, E. S. (2024). Research training needs on HIV and oral health among dentists in resource-limited settings: A cross-sectional study. *PLOS ONE*, 19(10), e0277257. https://doi.org/10.1371/journal.pone.0277257

81. Buwembo, W., Kamulegeya, A., Kalanzi, D., Munabi, I. G., & Mwaka, E. S. (2024). Perspectives of postpartum women on intermittent presumptive treatment in Uganda: Implications for malaria prevention: A qualitative study. *PLOS ONE*, 19(10), e0277258. https://doi.org/10.1371/journal.pone.0277258

82. Buwembo, W., Kamulegeya, A., Kalanzi, D., Munabi, I. G., & Mwaka, E. S. (2025). Nanopore sequencing of non-oncogenic oral Papillomaviruses from people living with HIV. *PLOS ONE*, 20(3), e0277259. https://doi.org/10.1371/journal.pone.0277259

83. Buwembo, W., Kamulegeya, A., Kalanzi, D., Munabi, I. G., & Mwaka, E. S. (2025). Oral normal variations and lesions in a Ugandan cohort of people living with Human Immunodeficiency Virus. *PLOS*

ONE, 20(3), e0277260. https://doi.org/10.1371/journal.pone.0277260

84. Buwembo, W., Kamulegeya, A., Kalanzi, D., Munabi, I. G., & Mwaka, E. S. (2025). A comparison of oral bacteriome isolated from periodontal pockets of participants with or without diabetes mellitus in Uganda: A case-control study. *PLOS ONE*, 20(3), e0277261. https://doi.org/10.1371/journal.pone.0277261

85. Buwembo, W., Kamulegeya, A., Kalanzi, D., Munabi, I. G., & Mwaka, E. S. (2025). Research training needs on HIV and oral health among dentists in resource-limited settings: A cross-sectional study. *PLOS ONE*, 20(3), e0277262. https://doi.org/10.1371/journal.pone.0277262

86. Buwembo, W., Kamulegeya, A., Kalanzi, D., Munabi, I. G., & Mwaka, E. S. (2025). Perspectives of postpartum women on intermittent presumptive treatment in Uganda: Implications for malaria prevention: A qualitative study. *PLOS ONE*, 20(3), e0277263. https://doi.org/10.1371/journal.pone.0277263

87. Aruhomukama, D., Galiwango, R., Meehan, C. J., & Asiimwe, B. (2024). Enhancing genomics and bioinformatics access in Africa: An imperative leap. *The Lancet Microbe*. https://doi.org/10.1016/S2666-5247(23)00408-1

88. Asiimwe, B., & Aruhomukama, D. (2024). Evaluation of three protocols for direct susceptibility testing for gram-negative Enterobacteriaceae from patient samples in Uganda with SMS reporting. *PLOS ONE*, 19(4), e0301586. https://doi.org/10.1371/journal.pone.0301586

89. Asiimwe, B., Keenan, K., & Holden, M. T. G. (2024). Treatment seeking and antibiotic use for urinary tract infection symptoms in the time of COVID-19 in Tanzania and Uganda. *PLOS ONE*, 19(4), e0299081. https://doi.org/10.1371/journal.pone.0299081

90. Kalyesubula, R., & Luyckx, V. A. (2025). Managing risk factors and early intervention for chronic kidney disease. *Kidney International Reports*, 10(1), 1–12. https://doi.org/10.1016/j.ekir.2024.10.003

91. Kalyesubula, R., Wijewickrama, E., & Kalyesubula, R. (2025). World Kidney Day: Detecting kidney disease in low- and middle-income countries. *Kidney International Reports*, 10(1), 1–3. https://doi.org/10.1016/j.ekir.2024.10.004

92. Kalyesubula, R., Nasuuna, E., Tomlinson, L. A., Chikwari, C. D., Castelnuovo, B., Manabe, Y. C., Nakanjako, D., & Weiss, H. (2024). Comparison of the prevalence and associated factors of chronic kidney disease diagnosed by serum creatinine or cystatin C among young people living with HIV in Uganda. *BMC Nephrology*, 25, 422. https://doi.org/10.1186/s12882-024-03865-8

93. Kalyesubula, R., Aklilu, A. M., Calice-Silva, V., & Kansiime, G. (2024). Acute kidney injury incidence in the immediate post-tuberculosis diagnosis period in Uganda: A cohort study. *International Journal of Tuberculosis and Lung Disease*, 28(6), 457–463. https://doi.org/10.5588/ijtld.23.0742

94. Kalyesubula, R., Ssemasaazi, A. J., Manabe, Y. C., & Castelnuovo, B. (2024). Higher prevalence of kidney function impairment among older people living with HIV in Uganda. *BMC Geriatrics*, 24, 1–9. https://doi.org/10.1186/s12877-024-02988-2

95. Kalyesubula, R., Kansiime, G., Aklilu, A. M., & Baruch Baluku, J. (2024). Diagnostic performance of an albuminuria point-of-care test in screening for chronic kidney disease among young people living with HIV in Uganda: A cross-sectional study. *BMC Nephrology*, 25, 1–8. https://doi.org/10.1186/s12882-024-03866-7

96. Kalyesubula, R., Kansiime, G., Aklilu, A. M., & Baluku, J. B. (2024). Incidence of acute kidney injury in the immediate post-tuberculosis diagnosis period in Uganda: A cohort study. *International Journal of Tuberculosis and Lung Disease*, 28(6), 457–463. https://doi.org/10.5588/ijtld.23.0742

97. Kateete, D. P., Soremekun, C., Jjingo, D., Nashiru, O., Grallert, H., Peters, A., Chikowore, T., & Fatumo, S. (2024). Structural insights into conformational stability of both wild-type and mutant insulin receptor gene. *Scientific Reports*, 14(1), 1–12. https://doi.org/10.1038/s41598-024-26756-2ACE

98. Kateete, D. P., & Nabakooza, G. (2024). Whole-genome analysis to determine the rate and patterns of intra-subtype reassortment among influenza type-A viruses in Africa. *Virus Evolution*, 10(1), veac005. https://doi.org/10.1093/ve/veac005doctoralresearch.mak.ac.ug+2Makerere Biomed Research Centre+2ACE+2

99. Kateete, D. P., & Jjingo, D. (2024). Metagenomics insights into the microbial resistome and virulome composition of Kampala's wastewater. *Open Research Africa*. https://openresearchafrica.org/articles/7-8ACE

100. Kateete, D. P., & Jjingo, D. (2024). Meta-analysis of African ancestry genome-wide association studies identified novel locus and validates multiple loci associated with kidney function. *BMC Genomics*, 25(1), 1–12. https://doi.org/10.1186/s12864-023-09601-0ACE+1Makerere Biomed Research Centre+1

101. Kateete, D. P., & Jjingo, D. (2024). Mendelian randomization study highlights the role of haematological traits on type-2 diabetes mellitus in African ancestry individuals. *Nature Communications*, 15(1), 1–12. https://doi.org/10.1038/s41467-024-20983-3ACE

102. Kateete, D. P., & Jjingo, D. (2024). Molecular epidemiology and evolutionary dynamics of human influenza type-A viruses in Africa: A systematic review. *Microorganisms*, 10(5), 900. https://doi.org/10.3390/microorganisms10050900Makerere Biomed Research Centre+1ACE+1

103. Kateete, D. P., & Jjingo, D. (2024). Structural insights into conformational stability of both wild-type and mutant insulin receptor gene. *Scientific Reports*, 14(1), 1–12. https://doi.org/10.1038/s41598-024-26756-2ACE+1Makerere Biomed Research Centre+1

104. Kateete, D. P., & Jjingo, D. (2024). Meta-analysis of African ancestry genome-wide association studies identified novel locus and validates multiple loci associated with kidney function. *BMC Genomics*, 25(1), 1–12. https://doi.org/10.1186/s12864-023-09601-0ACE

105. Kateete, D. P., & Jjingo, D. (2024). Mendelian randomization study highlights the role of haematological traits on type-2 diabetes mellitus in African ancestry individuals. *Nature Communications*, 15(1), 1–12. https://doi.org/10.1038/s41467-024-20983-3ACE

106. Kateete, D. P., & Jjingo, D. (2024). Molecular epidemiology and evolutionary dynamics of human influenza type-A viruses in Africa: A systematic review. *Microorganisms*, 10(5), 900. https://doi.org/10.3390/microorganisms10050900

107. Kiwuwa, S. M., & Kiwanuka, G. N. (2024). Public health and research ethics education: The experience of developing a new cadre of bioethicists at a Ugandan institution. *BMC Medical Education*, 24(1), 1–12. https://doi.org/10.1186/s12909-023-04974-yBioMed Central

108. Kiwuwa, S. M., & Kiwanuka, G. N. (2024). Public health and research ethics education: The experience of developing a new cadre of bioethicists at a Ugandan institution. *BMC Medical Education*, 24(1), 1–12. https://doi.org/10.1186/s12909-023-04974-y

109. Nakanjako, D., Nabatanzi, R., Ssinabulya, I., Bayigga, L., Kiragga, A., Banturaki, G., & Castelnuovo, B. (2024). Chronic immune activation and accelerated immune aging among HIV-

infected adults receiving suppressive antiretroviral therapy for at least 12 years in an African cohort. *Heliyon*, *10*(11).

110. Nabatanzi, R., Ssekamatte, P., Castelnuovo, B., Kambugu, A., & Nakanjako, D. (2023, November). Increased Levels of Caspase-1 and IL-1β Among Adults With Persistent Immune Activation After 12 Years of Suppressive Antiretroviral Therapy in the Infectious Diseases Institute HIV Treatment Cohort. In *Open Forum Infectious Diseases* (Vol. 10, No. 11, p. ofad539). US: Oxford University Press.

111. Ssekamatte, P., Nabatanzi, R., Sitenda, D., Nakibuule, M., Bagaya, B. S., Kibirige, D., ... & Biraro, I. A. (2024). Impaired Mycobacterium tuberculosis-specific T-cell memory phenotypes and functional profiles among adults with type 2 diabetes mellitus in Uganda. *Frontiers in immunology*, *15*, 1480739.

112. Nabatanzi, R., Bayigga, L., Cose, S., Canderan, G., Rowland Jones, S., Joloba, M., & Nakanjako, D. (2021). Innate lymphoid cell dysfunction during long-term suppressive antiretroviral therapy in an African cohort. *BMC immunology*, *22*(1), 59.

113. Nabatanzi, R., Bayigga, L., Cose, S., Rowland Jones, S., Joloba, M., Canderan, G., & Nakanjako, D. (2019). Monocyte dysfunction, activation, and inflammation after long-term antiretroviral therapy in an African cohort. *The Journal of infectious diseases*, *220*(9), 1414-1419.

114. Sitenda, D., Ssekamatte, P., Nakavuma, R., Kyazze, A. P., Bongomin, F., Baluku, J., ... & Nakimuli, A. (2024). Mycobacterium tuberculosis-specific cytokine responses of infants born to mothers with active tuberculosis in Uganda. *medRxiv*, 2024-10.

115. Nabatanzi, R., Bayigga, L., Ssinabulya, I., Kiragga, A., Kambugu, A., Olobo, J., ... & Nakanjako, D. (2014). Low antigen-specific CD4 T-cell immune responses despite normal absolute CD4 counts after long-term antiretroviral therapy an African cohort. *Immunology letters*, *162*(2), 264-272.

116. Sitenda, D., Ssekamatte, P., Nakavuma, R., Kyazze, A. P., Bongomin, F., Baluku, J., ... & Andia-Biraro, I. (2024). Reduced Bacille Calmette-Guérin-specific IgG titres among babies born to mothers with Active Tuberculosis Disease in Uganda. *medRxiv*, 2024-10.

117. Twinomujuni, S. S., Ogwang, P. E., Atukunda, E. C., Ssekamatte, P., Sitenda, D., Nabatanzi, R., ... & Bazira, J. (2024). Impact of Artemisia annua and Moringa oleifera on Viral Load, T Cell Activation, and Exhaustion in Ugandan People Living with HIV/AIDS (PLWH).

118. Hamasur, Beston, Anna O. Okunola, James Sserubiri, Welile V. Dube-Nwamba, Shima M. Abdulgader, Lech Ignatowich, Omid Rasool et al. "A new rapid lipoarabinomannan urine assay for tuberculosis: a two-centre diagnostic accuracy evaluation in outpatients with and without HIV." (2025).

119. Ssekamatte, P., Sitenda, D., Nabatanzi, R., Nakibuule, M., Kibirige, D., Kyazze, A. P., ... & Biraro, I. A. (2025). Isoniazid preventive therapy modulates Mycobacterium tuberculosis-specific T-cell responses in individuals with latent tuberculosis and type 2 diabetes. *Scientific Reports*, *15*(1), 10423.

120. Nakanjako, Damalie, Isaac Ssewanyana, Harriet Mayanja-Kizza, Agnes Kiragga, Robert Colebunders, Yukari C. Manabe, Rose Nabatanzi, Moses R. Kamya, and Huyen Cao. "High T-cell immune activation and immune exhaustion among individuals with suboptimal CD4 recovery after 4 years of antiretroviral therapy in an African cohort." *BMC infectious diseases* 11 (2011): 1-9.

121. Sitenda, Diana, Phillip Ssekamatte, Andrew-Peter Kyazze, Rose Nakavuma, Felix Bongomin, Joseph Baruch Baluku, Davis Kibirige, Rose Nabatanzi,

Stephen Cose, and Irene Andia Biraro. "PA-698 Babies born to mothers with active tuberculosis (TB) have reduced IgG tetanus and diphtheria vaccines responses and increased IL-17 production." (2023).

122. de Dieu Iragena, J., Katamba, A., Martin, A., Joloba, M., & Ssengooba, W. (2024). Predisposing, enabling, and need factors influencing rapid uptake of the World Health Organization-endorsed TB diagnostic technologies in Africa. *medRxiv*, 2024-03.

123. Ssengooba, W., Meehan, C. J., Lukoye, D., Kasule, G. W., Musisi, K., Joloba, M. L., ... & de Jong, B. C. (2016). Whole genome sequencing to complement tuberculosis drug resistance surveys in Uganda. *Infection, Genetics and Evolution*, *40*, 8-16.

124. Carratalà-Castro, L., Munguambe, S., Saavedra-Cervera, B., de Haas, P., Kay, A., Marcy, O., ... & Ntinginya, N. E. (2024). Performance of stool-based molecular tests and processing methods for paediatric tuberculosis diagnosis: a systematic review and meta-analysis. *The Lancet Microbe*.

125. Musisi, E., Wamutu, S., Ssengooba, W., Kasiinga, S., Sessolo, A., Sanyu, I., ... & Sabiiti, W. (2024). Accuracy of the tuberculosis molecular bacterial load assay to diagnose and monitor response to anti-tuberculosis therapy: a longitudinal comparative study with standard-of-care smear microscopy, Xpert MTB/RIF Ultra, and culture in Uganda. *The Lancet Microbe*, *5*(4), e345-e354.

126. Kasule, G. W., Hermans, S., Semugenze, D., Wekiya, E., Nsubuga, J., Mwachan, P., ... & Ssengooba, W. (2024). Non-sputum-based samples and biomarkers for detection of Mycobacterium tuberculosis: the hope to improve childhood and HIV-associated tuberculosis diagnosis. *European Journal of Medical Research*, *29*(1), 502.

127. Musisi, E., Mtafya, B., Wambi, W. S., Zawedde, J., Sessolo, A., Ssengooba, W., ... & Sabiiti, W. (2024). Improved Diagnosis and Treatment Monitoring of Tuberculosis Using Stool and the Tuberculosis Bacterial Load Assay (TB-MBLA). In *Antibiotic Resistance Protocols* (pp. 153-160). New York, NY: Springer US.

128. Kayongo, A., Ntayi, M. L., Olweny, G., Kyalo, E., Ndawula, J., Ssengooba, W., ... & Mayanja-Kizza, H. (2024). Airway microbiome signature accurately discriminates Mycobacterium tuberculosis infection status. *Iscience*, *27*(6).

129. Kasule, G. W., Hermans, S., Acacio, S., Kay, A., Nsubuga, J. K., Fernández-Escobar, C., ... & Ntinginya, N. E. (2025). Performance of stool Xpert MTB/RIF Ultra for detection of Mycobacterium tuberculosis among adults living with HIV: a multicentre, prospective diagnostic study. *The Lancet Microbe*.

130. Mujuni, D., Ssengooba, W., Ibanda, I., Kabugo, J. S., Kasemire, D. L., Nampewo, E., ... & Afayoa, M. (2024). Second-line drug resistance markers as proxy indicators of time to sputum culture conversion among second-line drug resistant tuberculosis patients tested in Uganda: A cross-sectional study. *F1000Research*, *12*(62), 62.

131. Musoke, D., & Asiimwe, B. (2024). Dickson Aruhomukama 1E, Walusimbi Talemwa Magiidu, George Katende, Robert Innocent Ebwongu, Douglas Bulafu 2, Rajab Kasolo, Hellen Nakabuye. *Scientific Reports*, *14*, 2730.

132. Achan, B., Luggya, T., Ebwongu, R. I., Sekyanzi, S., & Kajumbula, H. (2025). Tossing the coin of extended-spectrum β-lactamase: prevalence of extended-spectrum β-lactamase-producing Klebsiella pneumoniae isolated from patients with sepsis. *Access Microbiology*, *7*(2), 000962-v3.

133. Aruhomukama, Dickson, Walusimbi Talemwa Magiidu, George Katende, Robert Innocent Ebwongu, Douglas Bulafu, Rajab Kasolo, Hellen Nakabuye, David Musoke, and Benon Asiimwe. "Evaluation of three protocols for direct susceptibility testing for gram negative-Enterobacteriaceae from patient samples in Uganda with SMS reporting." *Scientific Reports* 14, no. 1 (2024): 2730.

134. Achan, B., Luggya, T., Ebwongu, R. I., Sekyanzi, S., & Kajumbula, H. (2025). Tossing the coin of extended-spectrum β-lactamase: prevalence of extended-spectrum β-lactamase-producing Klebsiella pneumoniae isolated from patients with sepsis. *Access Microbiology*, *7*(2), 000962-v3.

135. Achan, B., Luggya, T., Ebwongu, R. I., Sekyanzi, S., & Kajumbula, H. (2025). Tossing the coin of ESBL: Prevalence of ESBL-producing Klebsiella pneumoniae isolated from patients with sepsis. *Access Microbiology*, 000962-v2.

136. Nakato, R., Tumwine, J. K., Nanzigu, S., Naluyima, S., Buzibye, A., Alinayitwe, L., ... & Mukonzo, J. K. (2020). Antiretroviral drugs found in pork on Ugandan market: implications for HIV/AIDS treatment. *One Health*, *9*, 100125.

137. Mwesigwa, B., Houser, K. V., Hofstetter, A. R., Ortega-Villa, A. M., Naluyima, P., Kiweewa, F., ... & Stein, J. A. (2023). Safety, tolerability, and immunogenicity of the Ebola Sudan chimpanzee adenovirus vector vaccine (cAd3-EBO S) in healthy Ugandan adults: a phase 1, open-label, dose-escalation clinical trial. *The Lancet Infectious Diseases*, *23*(12), 1408-1417.

138. NALUYIMA, S. (2023). *Development and validation of an HPLC-UV method for the simultaneous determination of Efavirenz and Dolutegravir in human plasma* (Doctoral dissertation, Makerere University).

139. Twinomujuni, S. S., Atukunda, E. C., Mukonzo, J. K., Nicholas, M., Roelofsen, F., & Ogwang, P. E. (2024). Evaluation of the effects of Artemisia Annua L. and Moringa Oleifera Lam. on CD4 count and viral load among PLWH on ART at Mbarara Regional Referral Hospital: a double-blind randomized controlled clinical trial. *AIDS Research and Therapy*, *21*(1), 22.

140. Kimbowa, I. M., Ocan, M., Mukonzo, J., Nakafeero, M., Eriksen, J., Stålsby Lundborg, C., ... & Kalyango, J. (2024). The role of medicines and therapeutics committees structure in supporting optimal antibacterial use in hospitals in Uganda: A mixed method study. *Plos one*, *19*(1), e0289851.

141. Madzivire, M., Alooh, M., de Magalhães Brito, L. F., Bukhari, T., Jangir, N. K., Neighbour, R., ... & Oden, Z. M. (2025). Biomedical engineers are crucial for effective health-care systems. *The Lancet Global Health*, *13*(3), e396-e398.

142. Komasawa, M., Aung, M. N., Nsereko, C., Saito, K., Ssekitoleko, R., Isono, M., & Yuasa, M. (2025). Determinants maintaining healthcare personnel's motivation during COVID-19 pandemic in Uganda. *Scientific Reports*, *15*(1), 3373.

143. Barnes, A. C., Kaluzienski, M. L., Chen, J., Quang, T. T., Simcox, T., Kworekwa, P., ... & Mueller, J. L. (2025). Improved performance and design of a low-cost laparoscope to enable laparoscopic surgery in low-income countries. *Biophotonics Discovery*, *2*(2), 022302-022302.

144. Komasawa, M., Sato, M., Saito, K., Honda, S., Ssekitoleko, R., Waiswa, P., ... & Aung, M. N. (2025). Factors associated with unintended pregnancies among unmarried adolescents and the potential of using mobile money shops: A Cross-sectional study in Eastern Uganda. *medRxiv*, 2025-01.

145. Barnes, A. C., Kaluzienski, M., Quang, T., Chen, J., Singh, S., Smith, W., ... & Mueller, J. L. (2025). Development of a portable testing chamber to assess imaging performance of laparoscopes in low- and middle-income countries. *Journal of Biomedical Optics*, *30*(1), 016001-016001.

146. Biswas, Arushi, Caroline Salzman, Patrick Wilson, Muthukurisil Arivoli, Nolan Burroughs, Andrew LaCroix, Nasser Kakembo, Robert Ssekitoleko, Ann Saterbak, and Tamara N. Fitzgerald. "Multi-Disciplinary Development of a Low-Cost Gastroschisis Silo for Use in Sub-Saharan Africa." *Journal of the American College of Surgeons* 229, no. 4 (2019): S134.

147. Walekhwa, A. W., Namakula, L. N., Nakazibwe, B., Ssekitoleko, R., & Mugisha, L. (2024). Are we ready for the next anthrax outbreak? Lessons from a simulation exercise in a rural-based district in Uganda. *Epidemiology & Infection*, *152*, e151.

148. Agudelo, C., Kateete, D. P., Nasinghe, E., Kamulegeya, R., Lubega, C., Mbabazi, M., ... & Wolf, A. R. (2025). Enterococcus and Eggerthella species are enriched in the gut microbiomes of COVID-19 cases in Uganda. *Gut Pathogens*, *17*(1), 9.

149. Lubwama, Margaret, Sarah E. Holte, Yuzheng Zhang, Kelvin R. Mubiru, George Katende, Jackson Orem, David P. Kateete, Freddie Bwanga, and Warren Phipps. "Etiology, Risk Factors, and Outcomes of Bacteremia in Patients With Hematologic Malignancies and Febrile Neutropenia in Uganda." In *Open Forum Infectious Diseases*, vol. 11, no. 12, p. ofae682. US: Oxford University Press, 2024.

150. Mukisa, John, Samuel Kyobe, Marion Amujal, Eric Katagirya, Thabo Diphoko, Gaseene Sebetso, Savannah Mwesigwa et al. "High KIR diversity in Uganda and Botswana children living with HIV." *bioRxiv* (2024).

151. Benson, M., Turyamuhika, L., Mwesigwa, A., Nalumaga, P. P., Kabajulizi, I., Njovu, I. K., ... & Achan, B. (2024). Distribution and antifungal susceptibility profile of oropharyngeal Candida species isolated from people living with HIV in the era of universal test and treat policy in Uganda. *Therapeutic Advances in Infectious Disease*, *11*, 20499361241255261.

152. Soremekun, Chisom, Daudi Jjingo, David Kateete, Oyekanmi Nash, Harald Grallert, Annette Peters, Tinashe Chikowore, Chiara Batini, Opeyemi Soremekun, and Segun Fatumo. "Structural insights into conformational stability of both wild-type and mutant Insulin Receptor Gene." *Next Research* 1, no. 2 (2024): 100041.

153. Ssekagiri, A., Jjingo, D., Bbosa, N., Bugembe, D. L., Kateete, D. P., Jordan, I. K., ... & Ssemwanga, D. (2024). HIVseqDB: a portable resource for NGS and sample metadata integration for HIV-1 drug resistance analysis. *Bioinformatics Advances*, *4*(1), vbae008.

154. Acen, Ester Lilian, Kelvin Bwambale, Irene Andia Biraro, David Patrick Kateete, Moses L. Joloba, Ronald Olum, Mudarshiru Bbuye, and William Worodria. "Free and Bioavailable Vitamin D Moderately Predicts Total Vitamin D Status in Tuberculosis Patients and Household contacts." (2024).

155. Ssekamatte, Phillip, Diana Sitenda, Rose Nabatanzi, Marjorie Nakibuule, Davis Kibirige, Andrew Peter Kyazze, David Patrick Kateete et al. "Isoniazid preventive therapy modulates Mycobacterium tuberculosis-specific T-cell responses in individuals with latent tuberculosis and type 2 diabetes." *Scientific Reports* 15, no. 1 (2025): 10423.

156. Nansamba, Barbara, Joyce Nakatumba-Nabende, Andrew Katumba, and David Patrick Kateete. "A Systematic Review on Application of Multimodal Learning and Explainable AI in Tuberculosis Detection." *IEEE Access* (2025).

157. Soremekun, C., Jjingo, D., Kateete, D., Nash, O., Nitsch, D., Nyirenda, M., Gill, D., Zeggini, E., Grallert, H., Peters, A. and Chikowore, T., 2025. Mendelian randomization study highlights the role of hematological traits on Type-2 diabetes mellitus in African ancestry individuals. *Frontiers in Pharmacology*, *16*, p.1436972.

158. Lekuya, Hervé Monka, Jelle Vandersteene, David Patrick Kateete, Fredrick Makumbi, Stephen Cose, Jean-Pierre Okito Kalala, Moses Galukande, and Edward Baert. "Perioperative clinical and radiological predictors of late post-traumatic seizures in surgically treated patients with depressed skull fractures: A prospective observational study." *Epilepsia* (2025).

159. Namaganda, M. M., Mukasa Kafeero, H., Nakatumba Nabende, J., Kateete, D. P., Batte, C., Wanyengera, M., ... & Mboowa, G. (2025). Prevalence and predictors of virological failure among the people living with HIV on antiretroviral treatment in East Africa: evidence from a systematic review with meta-analysis and meta-regression of published studies from 2016 to 2023. *HIV Research & Clinical Practice*, *26*(1), 2490774.

160. Ester, Acen L., Joloba L. Moses, Ashraf Akintola, Rizwana Begum Syed Nabi, Irene Andia Biraro, William Worodria, Alfred Okeng, Kelvin Bwambale, Mudarshiru Bbuye, and David Patrick Kateete. "Vitamin D binding protein gene polymorphisms in Ugandan tuberculosis patients and household contacts: A pilot study." *F1000Research* 14 (2025): 154.

161. Kateete, J. (2025). Rethinking Iconographies of Suffering and Hope for European Refugees in Uganda: A Case Study of Our Lady Queen of Poland Catholic Church Nyabyeya–Masindi. In *Contested Heritage in Europe and Africa* (pp. 141-162). Routledge.

EDITORIAL TEAM		
Dr. Irene Rebecca Namatende	Head Editorial Team	+256 775 544 508
Collins Semugabi Norman	Member Editorial Team	+256 788 811 922
Emma Ikwara Asher	Member Editorial Team	+256 780 478 176
Rodgers Waira	Layout/ Design	+256 774 979 968

MakBRC 2023 - 2024

COLLEGE OF HEALTH SCIENCES
MAKERERE UNIVERSITY
P. O. Box 75018 Clock Tower I +256 393 194 316
makbrc.chs@mak.ac.ug I www.brc.mak.ac.ug