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THE VACCINE RESEARCH THEME

Optimising Vaccines and
their Health Benefits for
Africa and Globally



WHY VACCINES MATTER

According to the World Health Organisation (WHO), vaccines currently protect against over 20 life-threatening illnesses and avert up to five million deaths worldwide every year from diseases including diphtheria, tetanus, pertussis, influenza, and measles.

However, despite the general success of vaccines as a public health intervention, effective vaccines are not yet available for several infectious diseases of priority in Africa. These include viruses that cause major outbreaks in African populations, endemic diseases such as HIV and parasitic diseases such as worm infections. Moreover, some populations and individuals do not gain full benefit from existing vaccines due to biological, social and structural factors.

This calls for a holistic approach to build vaccine research capacity across the African continent, developing vaccines against pathogens of particular relevance to the region, and context-specific strategies to optimise the benefits that vaccines deliver to at-risk populations.

ABOUT US

The Vaccine Research Theme is one of three broad, interlinked research Themes of the MRC/UVRI and LSHTM Uganda Research Unit. Its goal is to contribute to optimising vaccines, and the health benefits that they provide, for Africa and globally. The other two Themes are Viral Pathogens and Non-communicable Diseases (NCDs).

The Vaccine Research Theme builds synergies through the conduct of targeted

studies working closely with scientists from the Viral Pathogens and NCD Themes, as well as the Uganda Virus Research Institute (UVRI), to address priority challenges for the health sector. Its work remains cognizant of the social determinants of disease, the design of appropriate interventions to address them, and discovery of key factors that influence the uptake of interventions among varied target groups, through the conduct of social science studies.

OUR RESEARCH FOCUS

This Theme has two (2) main research Focus Areas: Vaccines for Viruses and Immunomodulation, both of which are aimed at optimizing vaccine impact for distinct populations in Africa.

Vaccines for Viruses

The Focus Area comprises about 25 researchers working in three groups. Scientists are making progress on developing new vaccines from scratch for viruses such as COVID-19, and others that cause outbreaks in human and animals in this part of Africa, such as Rift Valley Fever virus. They are investigating the immune responses that vaccines need to elicit, and undertaking clinical trials to find out whether they are safe and effective. They are also working to find ways that vaccines can be used best for the people that need them. For example, the PREPVacc trial tested the combined use of pre-exposure prophylaxis (PREP) drugs and vaccination to prevent HIV.

PARTNERSHIP FOR IMPACT

The Theme is dedicated to ensuring the impact of its science, and is keen on building strategic collaborations with its wide key stakeholder base along the value chain of vaccine development to facilitate this. These stakeholders include:

- The Ministry of Health, its key agencies and regulatory bodies
- Research community volunteers in at-risk areas of focus
- Community Advisory Boards (CABs)
- Like-minded international and national research organisations
- Primary, secondary and tertiary academic institutions
- Health service providers

Immunomodulation

The Immunomodulation Focus Area also has about 25 scientists and has three Groups. The immunomodulation and Vaccines Group combines biologists who are interested in how different environments (with exposure to different infections, diets and so on) alter the way that people respond to vaccines, and social scientists who are interested in how social factors link in to determine whether people trust, access and take up different vaccines. The tuberculosis (TB) group works on understanding immune responses to TB in different parts of the body, as well as on trials of TB vaccines, and the schistosomiasis (Bilharzia) group works on both how this worm infection causes disease in different environments, and how a vaccine can be developed against it.

WHERE WE WORK

Our clinical studies are conducted with support from the Unit's Sequencing, Immunology, Clinical Trials and Clinical Diagnostics Laboratory Services and Biobanking (CDLS) research platforms at its Entebbe campus and Masaka City.

Our community-based studies also work through organized cohorts such as the Entebbe Mother and Baby Study (EMaBS) at Entebbe Grade A hospital, the General Population Cohort in Kyamulibwa, and in districts particularly affected by the infections we are studying.



ABOUT THE MRC/UVRI AND LSHTM UGANDA RESEARCH UNIT

The MRC/UVRI & LSHTM Uganda Research Unit is an internationally recognized centre of excellence for research and training. The Unit was established in 1988 to improve the understanding and control of the HIV epidemic in Uganda and globally, following a request from the Uganda Government to the United Kingdom (UK) Government. After wide consultations, and in response to the changing public health landscape, Unit work has broadened beyond HIV to include other infections, neglected, endemic, emerging and re-emerging infections and non-communicable diseases (NCDs).

The Unit is one of two (2) UKRI/MRC Units outside the UK, the other one in the Gambia. With strong affiliation to the Uganda Virus Research Institute (UVRI), the Unit enjoys vital representation at government level, which facilitates translation of research findings.

OUR MISSION

To conduct high-quality research that adds knowledge and leads to improved control of infectious and non-communicable diseases in Uganda, Africa and globally, through translation of scientific findings into policy and practice, and rigorous research capacity building

