ACEME

African Center for Excellence in Molecular Engineering

Our vision is for African scientists to be at the forefront of developing innovative solutions to fight vector-borne diseases on the continent

Vector-borne diseases account for over 17% of all infectious diseases. They are responsible for more than 700,000 deaths a year, and 80% of the world's population is at risk.[1] Africa bears one of the heaviest burdens of mortality from vector-borne diseases, particularly malaria, which is responsible for more than 500,000 deaths on the continent every year.[2]

Current tools to fight vector-borne diseases have saved millions of lives, but are not enough to eliminate them. Growing resistance to existing interventions, such as insecticides and drugs, is threatening the fight against vector-borne diseases. On top of this, the cost and difficulties involved in carrying out repeat interventions over vast and often rural areas, the spread of mosquitoes due to the effects of climate change, and the emergence and spread of new vectors present additional challenges.

Innovative solutions are needed to complement existing tools. Genetic approaches for vector control, such as genetically modified mosquitoes, are a promising approach, but their design and development require state-of-the-art infrastructure and technical capacity.

An African Center for Excellence in Molecular Engineering

We are working to establish an African Center for Excellence in Molecular Engineering, to support global efforts to develop innovative approaches for vector control. The center will be based at the University of Sciences, Techniques and Technologies of Bamako/ Malaria Research and Training Center (MRTC) and will provide a setting for African scientists to learn and develop advanced skills in genetic engineering, including those linked to the development of genetically modified mosquitoes. Our objectives are to:

- Set up a high-level technical team capable of developing genetic vector control tools in Africa
- Develop technical expertise in Africa to strengthen genetic engineering research capacity and ensure regulatory compliance
- Place African scientists at the heart of the fight against vector-borne diseases that heavily affect our continent

Our work

In preparation for the launch of the center, our team is focusing on capacity building in various fields. Our researchers are being trained in entomology, bioinformatics, epidemiology, ecology and regulation. In addition, the team is engaging stakeholders to establish a framework for discussion and ensure they are informed about our work.

In order to guarantee regulatory approval and compliance of activities, we have applied to the relevant authorities for authorization to work with genetically modified mosquitoes in containment.

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[1]*World Health Organization: WHO (2020). Vector-borne diseases.* https://www.who.int/news-room/fact-sheets/detail/vector-borne-diseases

[2]*World Health Organization: WHO (2023). World Malaria Report 2023.* https://www.who.int/teams/global-malaria-programme/reports/world-malaria-report-2023