TARGET MALARIA
A Vector Control Research Alliance

Press release

Common questions about gene drive, answered

Kampala, Uganda, 30 March 2026 - Across Africa, scientists are exploring new tools to reduce malaria, a disease that continues to claim hundreds of thousands of lives each year.

At this year's 39th African Union Summit in Ethiopia, African Heads of State and Governments issued a unified call for a new era of malaria financing, warning that progress is at risk.

The 2025 Africa Malaria Progress Report shows that Member States accounted for 270 million malaria cases in 2024 - 96% of the global total. It cautions that without urgent and sustained investment, the continent could lose decades of hard-won gains.

The consequences of inaction have serious costs. The report indicated that a projected 30% reduction in funding could result in 640 million fewer insecticide-treated nets, 146 million additional malaria cases, and nearly 400,000 more deaths - three-quarters of them children under five. Economically, this would translate into an estimated USD 37 billion loss in GDP by 2030.

In response to these challenges, African researchers are studying complementary and innovative approaches to strengthen malaria control.

H.E. Samia Suluhu Hassan, President of the United Republic of Tanzania, highlighted the country's investments in research and innovation, "Our approach has spanned the full spectrum of what it takes to beat this disease. Tanzania has invested in world-class research where our scientists are working at the frontier of new technologies. One of them is gene drive, an innovative approach that aims to ensure mosquitoes can no longer transmit the malaria parasite. This is African science, conducted by African researchers, addressing an African challenge."

While gene drive technology has generated significant interest, it has also raised important questions. Target Malaria's Dr Jonathan Kayondo addresses the most common questions, and what it could mean for malaria prevention in Africa.

What is gene drive?

Gene drive is a naturally occurring biological process that is being harnessed into the technology. In living organisms, gene drive increases the chance of inheritance of certain genes or traits. Gene drive is being researched to be a complementary tool to fight malaria in Africa, working alongside bed nets, insecticides, drugs and vaccines. By biasing the rate of inheritance of certain genes from one generation to another, gene drive can spread a modification to be passed on to all the mosquito population.

There are two gene drive strategies currently under investigation among various research teams in the world: either to reduce the number of malaria-carrying mosquitoes, or to stop the parasite from infecting the mosquitoes. At Target Malaria, we focus on the first approach. It is important to note that we do not target all mosquito species, but only the four *Anopheles* mosquitoes species are the main vectors of malaria in Africa[3].

Target Malaria is one of the research projects developing gene drive mosquitoes. Part of a consortium of research institutions in Africa, Europe and North America, Target Malaria researchers and scientists are working to reduce the population of malaria mosquitoes, because fewer mosquitoes carrying malaria would mean stopping the transmission of the disease.

Is gene drive the same as genetically modified crops?

No. While both involve genetics, gene drive research in malaria is focused on mosquito populations, not crops, not humans, and not livestock.

Are there gene drive mosquitoes in Africa at the moment?

Gene drive mosquitoes are being researched in controlled laboratory settings in Europe and the United States. There are currently no gene drive mosquitoes in contained laboratory in Africa. Gene drive mosquitoes have so far never been released in the wild.

An Anopheles mosquito in the lab. Photo credit: Target Malaria

Will gene drive eliminate all mosquitoes?

No. There are more than 3,500 species of mosquitoes worldwide. Only *Anopheles* mosquitoes can transmit malaria and only three to four *Anopheles* mosquitoes are responsible for the most of malaria transmission in Africa. Gene drive research targets specific malaria-carrying species: *An. coluzzii, An. gambiae, An. arabiensis, An. funestus.* The goal is not to eliminate all mosquitoes, but to reduce the population of those species enough to stop the transmission of the disease.

Is gene drive technology safe?

At Target Malaria, safety is our priority. We perform studies in our laboratories and insectaries to ensure our technology is safe and effective.

Gene drive research follows international and national regulations, ethical review processes, and international guidance. Before any future use, extensive testing, risk assessment, submissions of regulatory dossiers and community engagement would be required.

All phases of our work and anywhere in the world complies with the biosafety laws of the countries where we conduct our research.

No release can take place without regulatory approval. At present, all gene drive research takes place in controlled conditions in the lab. We hope to conduct gene drive field trials by 2030 in a malaria-endemic African country.

Why research gene drive at all, and why Africa?

Malaria remains a major public health challenge, especially in Africa. It is the main cause of deaths for children under five and a huge economic burden on the countries where it is endemic (estimated at 16b$ a year[1])

Despite tools such as insecticide-treated nets, indoor spraying, vaccines, and medicines, malaria cases remain high. Insecticide resistance in mosquitoes and drug resistance in parasites are increasing concerns because they are rendering the current tools ineffective.

A new study published in the journal Nature projects that climate change could cause an additional 500,000 deaths and 123 million clinical cases of malaria in Africa over the next 25 years (by 2050), even if current global climate pledges (SSP2-4.5) are met.[2]

Researchers are exploring gene drive as a potential complementary tool, not a replacement, to strengthen existing malaria control efforts.

Target Malaria's approach combines long-term, self-sustaining impact with precise targeting of malaria-transmitting mosquito species, offering a complementary tool that is not reliant on insecticides and is developed through a strong framework of regulation, transparency and community engagement in the countries most affected by the disease.

Why answering questions matters

Science communication is not separate from public health, it is part of it. Clear, accessible information helps communities, policymakers, and journalists make informed decisions.

When people understand how research works, how safety is assessed, and who is involved, public dialogue becomes stronger and more constructive.

[1] https://www.malarianomore.org/story/new-analysis-malaria-elimination-to-boost-african-economies-by-16-billion-average-annually
[2] https://www.nature.com/articles/s41586-025-10015-z
[3] *Anopheles gambiae*, *An. coluzzii*, *An. arabiensis* and *An. funestus.*

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Notes to editors

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About Target Malaria

Target Malaria is a not-for-profit research consortium that aims to develop and share new, cost-effective and sustainable genetic technologies to modify mosquitoes and reduce malaria transmission. Our vision is to contribute to a world free of malaria.

We aim to achieve excellence in all areas of our work, creating a path for responsible research and development of genetic technologies, such as gene drive. www.targetmalaria.org.

Target Malaria receives core funding by the Gates Foundation and Coefficient Giving (formerly Open Philanthropy). The lead grantee organisation is Imperial College London with partners in Africa, Europe and North America.

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