

## Mosquitoes are one of humanity's most dangerous enemies. Here's how synthetic biology might lead to a long-lasting repellent

Vector-borne diseases, such as malaria, dengue, and Zika, are pathogens that can be transmitted through the bite of an insect. Though vaccines for some of these illnesses are in development, current prevention options are not very effective.

To address this issue, the Defense Advanced Research Projects Agency (DARPA) is looking at synthetic biology as a method to find an easy to use, cost-effective solution.

In a recent announcement, DARPA awarded Ginkgo Bioworks, Azitra, Latham BioPharm Group, and Florida International University (FIU) a contract of up to \$15 million to create a novel, long-lasting mosquito repellent using engineered microbes.

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Currently, all available mosquito repellents fall short in providing long-lasting, effective protection. They require an application to the skin every few hours and are impractical for use in the field. ReVector's new project hopes their microbe-based solution will protect against mosquito bites for at least two weeks, skipping the need for continuous reapplication.

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Zach Smith, Director of Government Business at Ginkgo Bioworks, gave insights into the project's approach. "There are two ways to deal with mosquitoes, you can repel them or you can isolate the signals humans give off to attract mosquitoes and weaken them. We are planning to do both," says Smith.

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