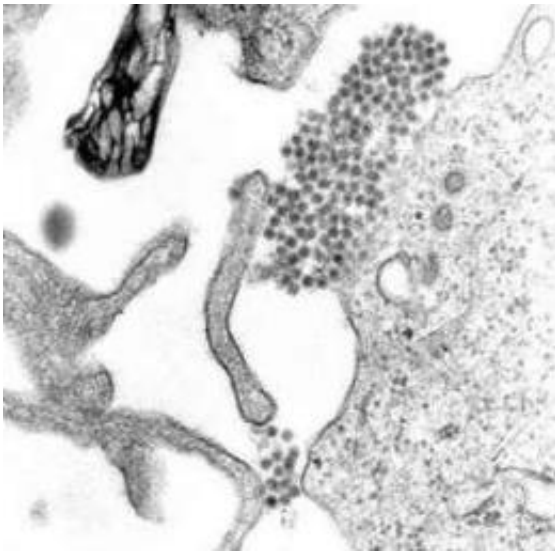


# Transgenic mosquito works to control dengue-carrying mosquitos

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A TEM micrograph showing Dengue virus virions (the cluster of dark dots near the center). Image: CDC

Releases of the genetically engineered Oxitec mosquito, commonly known as 'Friendly *Aedes aegypti*', reduced the dengue mosquito population in an area of Juazeiro, Brazil by 95%, well below the modelled threshold for epidemic disease transmission.

The journal *PLOS Neglected Tropical Diseases* published today the results of a trial of Oxitec's [genetically engineered](#) mosquitoes. The results showed that in Juazeiro city, northeast Brazil, the Oxitec mosquito

successfully controlled the *Aedes aegypti* mosquito that spreads [dengue](#) fever, chikungunya and zika virus, by reducing the target population by more than 90%. Popularly known in Brazil as "Friendly *Aedes aegypti*", the Oxitec mosquito decreased the population of the [dengue mosquito](#) so low that it would not support epidemic disease transmission according to mathematical models.

"The fact that the number of *Aedes aegypti* adults were reduced by 95% in the treatment area confirms that the Oxitec mosquito does what it is supposed to and that is to get rid of mosquitoes," said Dr Andrew McKemey, Head of Field Operations at Oxitec.

"According to published mathematical models reviewed and recommended by the World Health Organization (WHO) working group on dengue, it would also reduce the number of biting mosquitoes below the disease transmission threshold.

"The next step is to scale up to even larger studies and run mosquito control projects on an operational basis."

The study in the Itaberaba neighborhood of Juazeiro city in Bahia State, Brazil was led by University of Sao Paulo and Moscamed, a social company leading in environmentally friendly pest control. The treatment area included a population of approximately 1800 people.

## **How it works**

This method of control is species-specific. The Oxitec male mosquitoes are released to mate with the pest females and their offspring die because of a self-limiting gene before they can reproduce and before they can become transmitters of disease. The [mosquitoes](#) also carry a colour marker for monitoring, and the insects and their genes do not persist in the environment.

## Mosquito control in Brazil

"This invasive mosquito and the diseases it carries is a real challenge. *Aedes aegypti* is developing resistance to insecticides and even when we remove breeding sites, they continue to reproduce and transmit diseases because they live in areas that are difficult to treat. This is why we need new tools. We knew that the Oxitec mosquito was a promising tool, so we wanted to independently evaluate its effectiveness here in Brazil," said Professor Margareth Capurro of Sao Paulo University.

Brazil is leading the way in applying new approaches to fight the dengue mosquito. Following approval of the Oxitec mosquito by the national biosafety group CTNBio for release throughout the country, the city of Piracicaba has started the world's first municipal project of genetically engineered [mosquito control](#).

**More information:** "Suppression of a Field Population of *Aedes aegypti* in Brazil by Sustained Release of Transgenic Male Mosquitoes." *PLoS Negl Trop Dis* 9(7): e0003864. [DOI: 10.1371/journal.pntd.0003864](#)

"Transmission thresholds for dengue in terms of *Aedes aegypti* pupae per person with discussion of their utility in source reduction efforts." *Am J Trop Med Hyg* January 2000 62:11-8

Provided by Oxitec

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