



Partnership brings to Brazil a pioneering scientific initiative to control dengue

'Eliminar a Dengue: Desafio Brasil' Project tests a natural method to block dengue virus transmission in Aedes aegypti

Oswaldo Cruz Foundation (Fiocruz) brings to Brazil a new research strategy to control the spread of dengue. 'Eliminar a Dengue: Desafio Brasil' is part of the international not-for-profit research effort 'Eliminate Dengue: Our Challenge' led from Monash University, Melbourne, Australia.

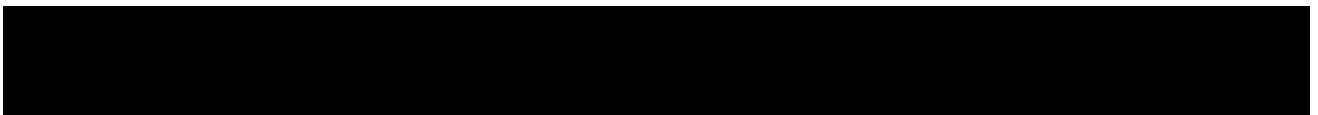
Eliminate Dengue and its international scientific partners, including Fiocruz collaborator Dr Luciano Moreira, has shown that when *Wolbachia*, a natural bacterium, is introduced into the dengue carrying *Aedes aegypti* mosquito it stops the virus from growing. If the virus can't grow in the mosquito, it can't be transmitted between people.

"Eliminate Dengue program members are currently evaluating the *Wolbachia* method in Australia, Vietnam and Indonesia and we are now pleased to say Brazil," said Paulo Gadelha, President, Fiocruz. "With this project, we are taking a leading role in an innovative, natural and economical approach against dengue, one of the greatest public health burdens in Brazil," Mr Gadelha said.

From lab to field

The Eliminate Program scientific team has shown two key aspects: that under lab conditions *Wolbachia* is able to block the dengue virus in the *Aedes aegypti* and that *Wolbachia* mosquitoes can establish within local mosquito populations during field trials.

Since 2011 the Australian project has released *Wolbachia* mosquitoes in field trials at selected locations in the north of the country. *Wolbachia* is transmitted from generation to generation through the mosquito's eggs and with a reproductive advantage, the mosquitoes with *Wolbachia* became predominant in *Aedes aegypti* local populations. The result is a natural and self-sustainable pioneering approach to control dengue. There is also no need for the continuous releasing of mosquitoes.



ELIMINAR A DENGUE

DESAFIO BRASIL

‘Eliminar a Dengue: Desafio Brasil’

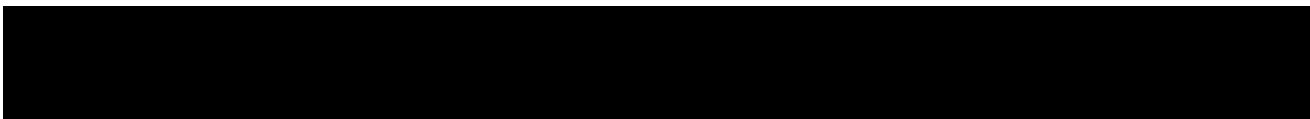
Dr Moreira will coordinate a multidisciplinary team of entomologists, field researchers and community engagement professionals with the intention of conducting the first field trials of the *Wolbachia* dengue control method in Brazil in 2014.

Eliminate Dengue PROGRAM	Viability studies Preparation at lab	Large cage trials (Optional phase)	Field trials	Goal
Australia 				Implementation as a new dengue control approach
Vietnam 				
Indonesia 				
Brazil 	 2012 e 2013	 2013	 May 2014	
China 				

“Our hope, following extensive laboratory and field studies, approval from regulatory authorities and support from residents is that we will be ready for the first field trials with *Wolbachia Aedes aegypti* mosquitoes in Rio de Janeiro in 2014. "Before any decision is made about the localities for the first trials, residents will be consulted by our community engagement team.” Dr Moreira said. The field trials are planned for May 2014 during the low season for mosquitoes.

After the release, studies to monitor the viability of the project and the effectiveness of *Wolbachia* establishing in local mosquitoes populations during field trials will be conducted along with monitoring the number of dengue cases.

Currently, the project in Brazil is focused on rearing colony systems of mosquitoes with *Wolbachia*, backcrossing them with local mosquitoes in the laboratory and





constructing large cages to rear and trial the mosquitoes before the field releasing begins. Furthermore, the locations are being selected for the field trials scheduled for 2014, which includes knowing entomological data on the local mosquito populations.

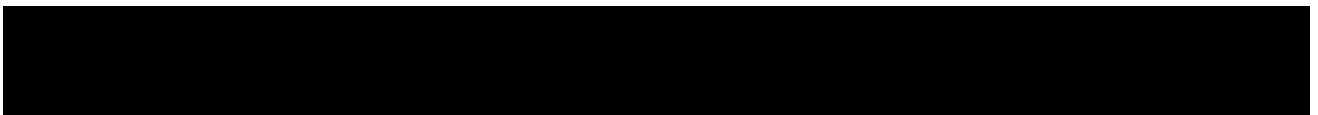
An international collaboration

Eliminate Dengue Program Leader Professor Scott O'Neill reinforces the collaborative research approach. "After years of laboratory work, two years of field trials in Australia, and further trials planned for Vietnam and Indonesia it is exciting to be working collaboratively with Fiocruz and we hope have a real impact on collaborating to reducing dengue transmission in Brazil," he said.

"The participation in this research shows that Brazil is in an advanced stage of scientific innovation. The Ministry of Health is committed to assure the viability of advanced technologies, under the priorities of the United System of Health (SUS)" says Carlos Gadelha, Secretary of Science and Technology and Strategic Inputs / Ministry of Health.

According to the Secretary of Health Surveillance of the Ministry of Health, Jarbas Barbosa, the use of *Wolbachia* to control dengue may constitute a promising strategy. "The Secretariat of Health Surveillance has been supporting various initiatives that aim to improve control of dengue in the country. I understand that the development of new strategies such as *Wolbachia* and vaccines, combined with the current strategies available, will be able to make the prevention and control of dengue more effective" says the secretary.

"The **Eliminar a Dengue** method is a long-term approach to control the spread of dengue and we must reinforce the message the project is still in the research phase. The best strategy to combat the dengue vector at this time and in the future is still the manual removal of breeding sites around homes. It would be fully compatible with a vaccine, once developed," explains Dr Moreira.





Funding for Eliminar a Dengue: Desafio Brasil

- Oswaldo Cruz Foundation (Fiocruz), Brazil
- The Foundation for the National Institutes of Health, United States
- Ministry of Health, Brazil – Department of Science and Technology / Secretary of Science and Technology and Strategic Inputs Ministry of Health – Secretary of Health Surveillance
- Ministry of Science and Technology (CNPq), Brazil

About dengue

According to the World Health Organization (WHO) 2.5 billion people in 100 countries are under threat of contracting the virus. In 2010 there were more than 1.2 million reported dengue cases in Brazil.

About *Wolbachia*

Wolbachia naturally occurs in up to 70% of all insects in the world including mosquitoes that bite but not the mosquitoes that carry dengue or malaria.

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