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RELEASE**

MEDIA

Opening of Mosquito Research Facility

An international team of collaborators, aiming to eliminate dengue fever worldwide, will take a major step forward today when a state of the art Mosquito Research Facility (MRF) is officially opened at James Cook University, in Cairns.

The newly constructed MRF will be opened by Her Excellency Ms Penelope Wensley AO, Governor of Queensland.

The Foundation for the National Institutes of Health, through the Grand Challenges in Global Health initiative of the Bill & Melinda Gates Foundation, together with JCU has invested \$2M AUD into this new facility. Experiments will be conducted at JCU over the next 18 months to test the use of *Wolbachia* bacteria to control the spread of dengue. *Wolbachia* shortens the lives of mosquitoes, which must live at least 12 days in order to pass Dengue on to humans.

The Facility comprises a high-level containment laboratory and two fully enclosed, outdoor 'green-house' style laboratories which have been designed and built to replicate the preferred Australian breeding ground of the mosquito – that is the typical Cairns residential backyard including the underside of a Queenslander-style house.

The project is led by Professor Scott O'Neill from The University of Queensland who has been working on the project for the last three years. "Following our success in the lab we are now taking our research to the next stage, into a more naturally occurring but still controlled and contained environment," Professor O'Neill said.

"Over the next year, our team will be able to evaluate the ability of *Wolbachia* to invade *Aedes aegypti* populations in this enclosed facility, as well as *Wolbachia's* potential to eliminate dengue by shortening the mosquitoes' lives and rendering them unable to transmit the virus."

The dengue research and the Mosquito Research Facility at JCU are overseen by Dr Scott Ritchie, who has worked extensively with other Queensland Health experts in monitoring and controlling dengue outbreaks in far north Queensland, for more than a decade.

"We are all very excited about this project," Dr Ritchie said. "If successful this research will allow us to 'Dengue-proof' Cairns and, we hope, to never again experience an outbreak of the virus like we have seen this year."

The public are invited to tour the Facility with Dr Ritchie next Wednesday 10th June at 4pm and 6pm. Places are limited and bookings essential. Call 07 4042 1449 to reserve your place.

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Background

- Dengue fever is a viral disease transmitted primarily by the highly domesticated *Aedes aegypti* species.
- This mosquito occurs in more than 100 countries worldwide with over 40% of the world's population at risk of infection from the virus.
- 50-100 million dengue cases are reported annually with 500,000 of these developing into dengue haemorrhagic fever, which results in up to 25,000 deaths annually worldwide.
- Only female *Aedes aegypti* mosquitoes can transmit dengue because only the female mosquito bites (or blood-feeds). They require the blood for egg production.
- The transmission cycle for dengue is human - mosquito - human. A female mosquito may acquire dengue virus after ingesting blood from a person who has dengue.
- It takes about 8 - 10 days for the mosquito to be capable of transmitting the dengue virus to a new person. During this time the dengue virus replicates inside the mosquito body, spreading until it reaches the mosquito's salivary glands. The dengue virus is then injected with the saliva into a human whenever the mosquito takes a blood meal.
- Given that most mosquitoes die at a young age, only relatively old female *Aedes aegypti* (those at least 12 days old) can transmit dengue virus to humans.
- *Wolbachia* is a naturally occurring bacterium present in more than 20% of all insect species. One particular strain, *Wolbachia pipientis* (wMelPop) is known to have a life-shortening effect in adult fruit flies (*Drosophila* sp.). That is, the adult flies with *Wolbachia* don't live as long as those without *Wolbachia*.
- Scientists hope that by introducing this life-shortening strain of *Wolbachia* bacterium into *Aedes aegypti*, the mosquitoes will die before they are old enough to transmit dengue virus to people.
- The Mosquito Research Facility at JCU has been built to QIC2 quarantine standards and will remain useful after the *Wolbachia* project has ended. It has been built to a higher security level than is required for this project. This will give researchers and JCU students the flexibility to conduct research into novel approaches

to control insect-transmitted diseases that may threaten tropical communities in Australia and our region in the future.

Read more and view a video presentation of the project at:
www.eliminatedengue.com

Wednesday 3 June

Her Excellency arrives at 8.55am, tour of MRF begins at 9.00am.

The Mosquito Research Facility (MRF) is located behind building E2.

Enter JCU's Smithfield campus from McGregor Rd and follow the signs to the left.

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