NHMRC: IMPACT CASE STUDY

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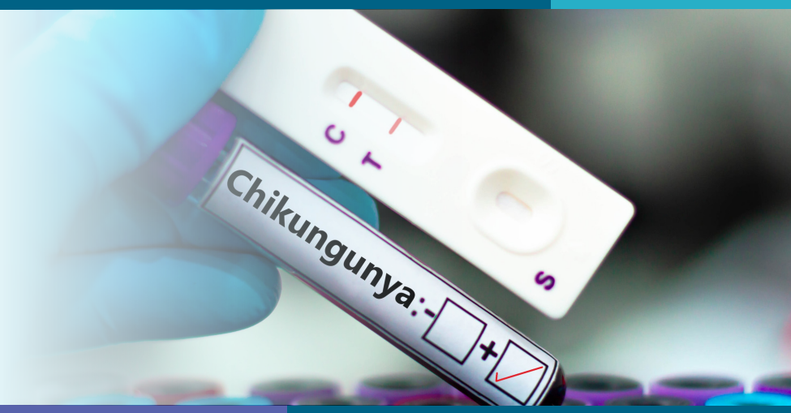
Australian Government
National Health and Medical Research Council

NHMRC

A vaccine for chikungunya virus

Chikungunya is a mosquito-transmitted viral disease characterised by sporadic, unpredictable outbreaks. Due to international travel and the spread of potential disease-carrying vectors such as mosquitos, chikungunya virus infections have now been identified in over 125 countries. Over the past 20 years, more than 10 million chikungunya virus infections have been reported, highlighting it as a significant global health threat. NHMRC-funded researchers at Griffith University, as part of an international consortium, have developed a vaccine against this disease.



Origin

First reported in Tanzania in 1952, chikungunya virus (CHIKV) has spread through India to South-East Asia and to the Americas.

Now, more than a billion people live in CHIKV-endemic areas.

The virus has caused thousands of deaths and persistent disease in up to half of those infected.

CHIKV is similar to the Ross River Virus (RRV), which has been intensively studied in Australia for decades.

Investment

Research relevant to developing a vaccine against CHIKV has been funded by NHMRC. Funded researchers include Joseph Fraser at Royal Melbourne Hospital, Lynn Dalgarno at ANU, Suresh Mahalingam and Adam Taylor at Griffith University, and Brett Lidbury at University of Canberra.

Funding was also provided by the Australian Research Council, Australia-India Strategic Research Fund, European Union FP7-Health, National Foundation for Medical Research and Innovation.

Research

Fraser undertook a long-term research program aimed at understanding arthritis and then RRV. Dalgarno, too, undertook research on RRV.

Informed by this earlier work, the Griffith University team undertook extensive studies to understand the mechanism of action of chikungunya disease.

The team's RRV studies led to the development of a biologically relevant CHIKV model that could be used to reveal how the disease develops and is resolved.

Translation

An international research collaboration involving researchers from the EU, Asia, and Australia, including the Griffith University team, developed biological models, molecular tools, antibodies, vaccines, antivirals, and CHIKV epidemiology and clinical diagnosis.

By developing an infectious clone of CHIKV, the collaboration led to the creation of two novel live-attenuated CHIKV vaccines (CHIKV-NoLS and IXCHIQ®) both of which have been further developed by biotechnology companies.

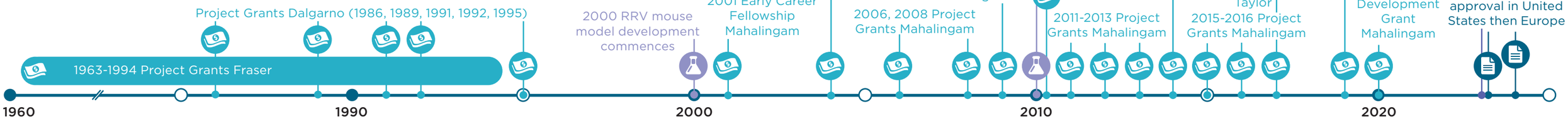
Impact

In Phase 3 clinical trials involving over 3,700 people, more than 2,700 participants received the IXCHIQ® vaccine.

The vaccine was shown to induce a strong and long-lasting antibody response, critical for stopping outbreaks and reducing disease severity.

In 2023, the US Food and Drug Administration approved IXCHIQ®. Use of this new vaccine is expected to help those who live in, or frequently travel to and from, CHIKV-endemic areas.

More than a billion people live in Chikungunya endemic areas. However, the new vaccine provides strong and long-lasting protection against Chikungunya



Researchers

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