

Antibodies discovery could lead to universal dengue vaccine

December 16 2014, by Liz Banks-Anderson



A major new class of antibodies that can make the four different types of dengue virus (DENV) non-infectious has been discovered by a group of international researchers, including from the University of Melbourne.

The discovery could lead to the development of better vaccines and [laboratory tests](#) that eventually could lead to reductions in the incidence of dengue.

Published in *Nature Immunology*, the research outlines the first reported incidence of an antibody that can neutralise all four type of the [dengue](#)

[virus](#) when it is produced from human or mosquito cells.

Co-author Professor Cameron Simmons from the Doherty Institute for Infection and Immunity said the exciting findings could pave the way for the development of vaccines that target all four strains of the dengue virus which is currently not available.

"There is an urgent need to reduce incidence of people suffering dengue, and understand the human immune response to infection and the response following vaccination. "

This unique discovery makes the future development of vaccines that could prevent the spread of the disease a realistic goal and may also pave the way for a universal DENV vaccine," he said.

Researchers analysed a large group of anti-[dengue antibodies](#) from human patients who were infected with the virus. They found a new class of antibodies that are highly effective at neutralising the virus, which bind to a newly discovered epitope - a unique structure that antibodies can recognise and bind to - that is present in all forms of the disease.

The geographical spread of the disease continues to widen, threatening the Southern United States and Australia while there is also concern of possible spread to Southern Europe. Infection with one form of the virus leads to life-long protection against that specific form but not against others. In addition, antibody recognition of [virus particles](#) is complicated by dramatic changes in the shell of the virus during its lifecycle.

More information: "A new class of highly potent, broadly neutralizing antibodies isolated from viremic patients infected with dengue virus." *Nature Immunology* (2014) [DOI: 10.1038/ni.3058](https://doi.org/10.1038/ni.3058)

Provided by University of Melbourne

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