

## New route to better dengue vaccine identified

By Bhavya Khullar

New Delhi, March 20 (India Science Wire): Scientists have identified a protein that could help develop a better dengue vaccine in the future.

Making an effective dengue vaccine has remained a challenge for several decades now. This is because the virus that causes dengue has four types, named DENV-1 to 4, and these four types trigger different immune responses in the human body. The discovery of the new protein that is found in all four variants of the virus will help overcome this challenge.



A commercial dengue vaccine became available in 2016 but it is yet to be licensed in India. To help make a vaccine that prevents dengue infection from all the four types of virus, bioinformatics scientists at the Alagappa University in Tamil Nadu used algorithms to identify a protein which is common to all the four viral types, so that it can be used to develop a vaccine.

The exercise resulted in identification of a protein which is made of fifteen amino acids or building blocks of proteins. This protein is a component of the outer envelope of the dengue virus and shares 100% similarity in all four viral types. Scientists also found that this sequence shares some similarity with fifteen other dengue proteins, which have been proved to trigger immune response in previous studies. The study results have been published *Indian Journal of Medical Research*. The authors of this study are K Muthusamy, K Gopinath and D Nandhini. The research team is led by M Karthikeyan.

Using small proteins of the virus to make the vaccine instead of using the complete virus is considered a safer method of immunization. Using computer programmes to identify such proteins could save time and cost. "In the future, this approach can be used for the analysis of other pathogens, providing a novel and generalized approach

to the formulation of vaccines that are effective against a broad diversity of pathogens”, say scientists.

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