

Dengue Vaccine

Background:

Dengue is a viral infection caused by the dengue virus (DENV). It is transmitted to humans through the bite of infected Aedes mosquito. According to WHO estimate, 390 million people are infected by dengue yearly, out of which 96 million manifest clinically.

Technology:

Researchers developed a Dengue DNA vaccine construct that has potential for human prophylactic / therapeutic applications. After extensive surveillance in India, 4 immunodominant sequences corresponding to the envelope proteins of prevalent strains of DENV were identified. The corresponding DNA cassette is cloned into an expression vector which has already been approved for clinical use.

The construct produces a robust cytotoxic T cell and humoral response in mice models. Animals administered with the vaccine generated neutralizing antibodies and even sera from immunized animals was able to confer protection to animals challenged with virulent DENV. This vaccine does not induce antibody dependent enhancement (ADE), a condition that spells inferior prognosis in individuals with prior exposure to DENV. The antigens responsible for ADE have been eliminated in this construct, hence, rendering it safe for universal administration.

Application:

Vaccine for dengue

Advantages:

- Against 4 immunodominant dengue serotypes (DENV-1, DENV-2, DENV-3 & DENV-4)
- Robust T-cell and humoral response
- Antibody Dependent Enhancement (ADE) response absent

Publication:

Immune profile and responses of a novel dengue DNA vaccine encoding an EDIII-NS1 consensus design based on Indo-African sequences. *Mol Ther.* May 2022 ([Click here](#) for details)

IP status:

Provisional Indian application no. 202141061753.
PCT Application filed, application no.
PCT/IB2022/062891 (unpublished).

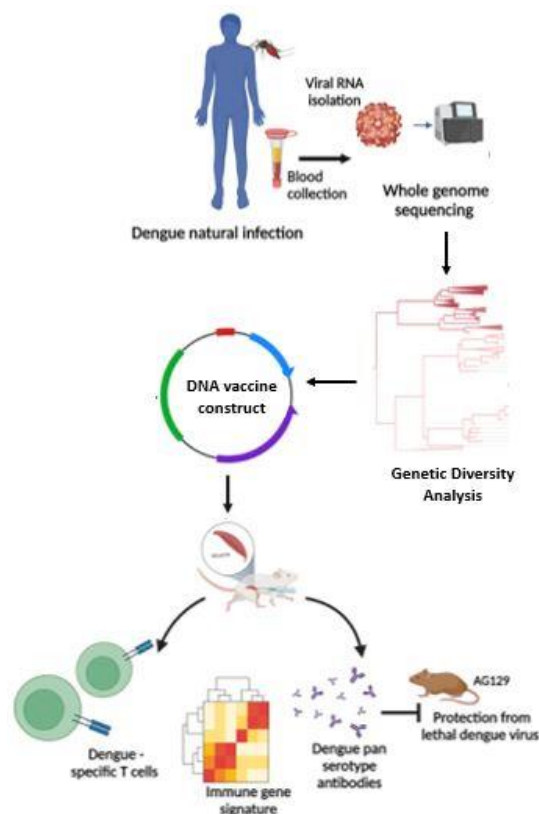


Figure. Workflow shows study of genetic diversity of DENV serotypes followed by DNA vaccine development.