

Dual-Tube One-Step RT Multiplex PCR Dengue NGS

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About the Technology:

A single-step, dual-tube multiplex RT-PCR method for near full-length whole-genome amplification of all four dengue virus serotypes. The technology enables comprehensive genome coverage directly from clinical samples and generates NGS-ready amplicons compatible with both Illumina and Oxford Nanopore sequencing platforms, offering a rapid, scalable, and cost-effective approach for dengue genome sequencing.

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Institute: ICMR - NIRBI

Technology Domain: Diagnostics

IP Filing:

Indian Patent Application: 202611088692

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EoI Deadline: 4th September 2026

Need and utility of the Technology from Public health perspective:

This technology simplifies dengue whole-genome amplification through a single-step workflow, reducing turnaround time, contamination risk, and resource requirements. It enables reliable sequencing from clinical samples, including low viral load specimens, thereby supporting large-scale dengue surveillance, molecular epidemiology, and outbreak investigations.

Technology Readiness level (TRL):

TRL-5: Validated in third party set-up



Validation Status and Study Outcome:

- In-house validation, for amplification of >350 dengue virus whole genome and NGS sequencing in both Nanopore and Illumina platform, has been completed. Sequence data is very promising and usable for genome analysis study.
- Six ICMR Institutes have validated the method in >150 dengue virus whole genome and NGS sequencing in both Nanopore and Illumina platform.

Market Potential:

The technology has commercial potential for development as a low-cost Dengue virus serotype-specific whole-genome amplification kit. It is intended for use in dengue genome sequencing and surveillance, with potential interest from companies involved in diagnostics, genomics, and sequencing applications.

Unmet Need:

Lack of a simple, single-step method for complete dengue genome amplification from clinical samples for direct NGS-based surveillance.

Publication: NA