Multiplex RT-PCR for simultaneous detection of Influenza A and B, RSV A/B and SARS-CoV2

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Reference ID: ICMR/EoI/PM/15/Fiveplex Assay/2026

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Technology Domain: Diagnostics

Disease Area (Broad):

Communicable Diseases (bacterial, viral, fungal, parasitic) – Respiratory Viruses

Need and utility of the Technology from Public health perspective:

Integrated surveillance of Influenza, SARS-CoV-2, and RSV is essential for timely diagnosis, variant tracking, and monitoring high-risk groups. With few single-tube multiplex assays available, the NIV-developed kit filled a critical gap by accurately detecting Influenza A/B, SARS-CoV-2 variants, and RSV. It widely used by under India's national respiratory surveillance program enabled rapid identification of infections and co-infections, supporting targeted clinical management.

Technology Readiness level (TRL):

- TRL5: Validated at laboratory and by third-party

Validation Status and outcome:

The kit demonstrated robust third-party validation across four VRDL sites with 100% specificity, 99.8–100% sensitivity, no cross-reactivity, consistent WHO-EQA success (2021–2025), and widespread national adoption.

Market Potential:

The multiplex assay has strong market potential as an essential tool for integrated surveillance of Influenza A/B, SARS-CoV-2, and RSV—pathogens with high seasonal and pandemic relevance. Its proven high sensitivity, specificity, and WHO-EQA performance make it ideal for national programs, VRDL networks, hospitals, and private diagnostic chains requiring reliable single-tube differentiation. With rising clinical demand for rapid detection, co-infection monitoring, and variant tracking, the kit can serve as a preferred solution for respiratory diagnostics across India. Its established use in pan-India surveillance further validates its scalability and immediate deployability.

Publication:

- V Potdar et. al, External quality assessment for laboratories in pan-India ILI/SARI surveillance for simultaneous detection of influenza virus and SARS-CoV-2,Frontiers in Public Health 11, 127450
- V Potdar, N Vijay, L Mukhopadhyay, N Aggarwal et al ,Pan-India influenza-like illness (ILI) and Severe acute respiratory infection (SARI) surveillance: epidemiological, clinical and genomic analysis Frontiers in Public Health, 2023, 11, 1218292

IP Filing: Patent filing in process