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CrisprBits' OmiCrisp tracks Omicron-derived JN.1 variant in sewage samples in Bengaluru

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OmiCrisp is testing platform for rapid diagnosis and surveillance of SARS-CoV2



Bengaluru-based startup CrisprBits has developed OmiCrisp, a CRISPR based testing platform for rapid diagnosis and surveillance of SARS-CoV2. The CRISPR based test not only detects the virus, but also distinguishes variants of Omicron lineage from other previously known variants of concern.

The test is currently in use by Molecular Solutions Care Health LLP, for weekly monitoring of the Omicron-derived JN.1 variant in sewage samples from 14 localities in Bengaluru, funded by Blockchain for Impact. The CRISPR technology can specifically discriminate the actual base changes as the virus mutates, instead of relying on the absence of signal due to sequence changes.

In a comprehensive study recently accepted for publication in the Journal of Biotechnology and Biomedicine, OmiCrisp was validated in 80 clinical samples and over 160 wastewater samples. The clinical samples were cross-validated against the highly accurate next-generation sequencing platform, while wastewater results were compared using approved qRTPCR tests.

Notably, the CRISPR-based test demonstrated tolerance to poor-quality samples derived from sewage, highlighting its utility in discerning even single base changes in matrices of inferior stability. The study reveals a remarkable 99% accuracy in detecting the Omicron lineage of the virus in both clinical and wastewater samples. The grant for wastewater surveillance validation was supported by Blockchain for Impact (formerly CryptoRelief, a community run fund delivering relief during the recent SARS-CoV2 pandemic) and their partner GiveIndia.

OmiCrisp was developed in collaboration with the C-CAMP-InDx (Indigenisation of Diagnostics program anchored at the Centre for Cellular And Molecular Platforms or C-CAMP). The validation of the platform on clinical samples was performed with the support from DBT-inStem biorepository and the COVID testing laboratory at Strand Life Sciences.

CrisprBits is currently focused on launching its point-of-need instrument light platform, PathCrisp, in 2024, for clinical and environmental surveillance.