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CrisprBits develops Indiaâ??s first CRISPR-based SARS-CoV-2 test with Omicron detection

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OmiCrisp has been developed with support from Centre for Cellular And Molecular Platforms (C-CAMP)-InDx Programme



CrisprBits, one of the first Indian companies using CRISPR, a breakthrough gene-editing technology, has developed OmiCrisp, a CRISPR- based test to detect SARS-CoV-2 and to determine whether it is an Omicron or non-omicron variant.

The test has been developed with support and collaboration from Bengaluru-based C-CAMP-InDx (Indigenisation of Diagnostics Programme), an initiative supported by the Department of Biotechnology, Govt of India.

The test has been validated with significant contribution and expertise of DBT- inStem biorepository and the COVID-19 testing laboratory (The Institute for Stem Cell Science and Regenerative Medicine or inStem, an autonomous institute funded by the Dept. of Biotechnology, Govt Of India), and Strand Life Sciences, a genomics-based research and diagnostics company.

The patent pending OmiCrisp test uses the Cas12a enzyme and separate guides to target variant-specific sequences found in Omicron and non-Omicron variants of SARS-CoV-2. This is different from many other tests in the market that use RT-PCR signal drop-out to identify Omicron variants. The test was tested on over 80 clinical samples and was 100% accurate in identifying whether a sample was Omicron or non-Omicron when compared to sequencing results.

Dr Vijay Chandru, Co-Founder of CrisprBits, said, "CRISPR as a detection system for nucleic signal offers great promise to meet the need for pervasive and distributed diagnostic platforms. The accuracy of these tests on both clinical and environmental samples gives us great hope, as well as the ease of rapidly redesigning assays as new emerging variants of pathogens and resistance markers need to be detected."

The OmiCrisp test is now being used in a study to detect the presence of Omicron variants in sewage samples in an ongoing collaborative study with the support of a grant from GiveIndia & CryptoRelief, a community-run fund delivering relief during the recent SARS-CoV2 pandemic.