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Reliable and rapid detection in the face of SARS-CoV-2 mutations

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The accuracy of the RT PCR tests is valuable in detecting asymptomatic cases

The growing concern related to the Omicron variant has put the guards up for authorities worldwide. Testing has been ramped up at borders to control the spread of the new COVID-19 variant. Currently, daily samples tested in India are estimated to be above 1.2 million and this number is bound to increase as the new variant progresses.

According to 'Research and Markets', the global RT PCR testing market reached $22.53 billion in 2020, because of the pandemic. There was an expected decline with signs of normalcy in 2021, to about $9.98 billion, but with the rise of the Omicron variant, it may spike again before stabilizing.

In such a scenario, RT-PCR-based tests- the most reliable method for confirming infected individuals - have come to the rescue. India currently has more than 2000 testing laboratories to meet testing demand when cases are at their peak. Further, the accuracy of the RT PCR tests is valuable in detecting asymptomatic cases. Even with the new Omicron variant, cases reported are mild or asymptomatic. Therefore, to detect an infected individual, one needs accurate and precise testing methods.

Assay design keeping mutations in mind

At Thermo Fisher Scientific, we are committed to providing our customers with gold-standard molecular technology. During the onset of the pandemic, our company's approach to infectious disease assay design was based on our learnings from past outbreaks such as H1N1, Zika, SARS, and MERS, while developing the coronavirus assay. This led to a design that embraces genomic conservation, redundancy and produces an assay that is specific and sensitive.

With more than 30 mutations in the spike protein alone, the WHO has designated Omicron as a "variant of concern". Our TaqPath COVID-19 assays detect SARS-CoV-2 infections by identifying the presence of three gene targets from the orf1a/b, S, and N regions of the virus. If a sample with a variant that has the 69-70del is tested using the TaqPath COVID-19 tests, it will result in an S gene dropout. This S-gene target failure (SGTF) of PCR assays can be used as a proxy for the Omicron variant after confirmation of a subset of samples by sequencing.

Overall, Thermo Fisher is well-positioned to significantly bolster India's response to COVID-19 with technologies and solutions that offer speed, accuracy, and sensitivity vital for strengthening the overall healthcare capabilities and for effective infectious disease management in the country.

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