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IIT Kgp creates portable rapid diagnostic device for COVID-19 detection

27 July 2020 | News

IIT Kharagpur is ready for commercialization of the product



In a unique effort, researchers at IIT Kharagpur (Kgp) have innovated a novel portable rapid diagnostic device to detect COVID-19 infection.

This first-of-its-kind device will bring the testing for COVID-19 out from the walls of expensive laboratories and RT-PCR machines and enable testing at affordable costs for the under-served community across the world.

This entire test can be conducted in an ultra-low-cost portable enclosure as an alternative to specialized laboratory equipment.

The same portable unit can be used for a large number of tests, on mere replacement of the paper cartridge after each test. The device has been proven to produce no false result with remarkable accuracy and sensitivity compatible to standard RT-PCR tests.

This test has an unprecedented low cost of less than Rs 400 per test, taking all components of expenses and business model into account.

A video in English about the Novel Technology of IIT Kharagpur's first-of-its-kind portable rapid diagnostic device for COVID-19 can be found by clicking on this link - https://fromsmash.com/IIT-KGP-COVID-Testing-Novel-Technology.

The Equipment developed by IIT Kharagpur Researchers will cost about Rs 2,000 if a pilot facility is used. Use of a large-scale commercial facility will further reduce with increase in the production scale. This compares very favourably with the RT PCR machine costing Rs 15 Lakh.

Further, Dr. Arindam Mondal, Assistant Professor, School of Bio Science, IIT Kharagpur, added, “The unique portable device developed by the IIT Kharagpur researchers has not only been validated for the diagnostics of COVID-19, but also been designed to be capable of detecting any other kind of RNA virus by following the same generic procedure. The impact of this, therefore, is long lasting, empowered by the capability of detecting unforeseen viral pandemics in the coming years that may potentially endanger human lives time and again.”

The project received financial support from the Institute in late April as Prof. V K Tewari, Director, IIT Kharagpur, decided to set up a fund to support COVID-19 related research and product development.

“This unique innovation is aligned with the Institutional vision to develop high-end healthcare technologies that can be afforded by the ailing common people all around the globe at virtually no cost, and is likely to make significant breakthrough in global viral pandemic management”, opined Director Prof. V K Tewari.

The Ministry of Human Resources Development, Govt. of India has also been reaching out to all technical institutions regarding ongoing research work to help address India's increasing need to augment testing facilities.

The results from this new technology have been strictly validated by following all established laboratory controls against the benchmarked results obtained from RT-PCR machine, using synthetic viral RNA. The synthetic RNA is exactly the same replicate of the viral RNA extracted from infected patients, as per accepted scientific benchmarking procedure, and is used for validating laboratory tests to avoid undue contamination and danger due to spreading of infection while handling sensitive body-fluid samples.

IIT Kharagpur is ready for commercialization of the product. Any corporate or start-up can approach the Institute for technology licensing and commercial scale of production. The Institute is open to tie-ups, including a mode where the government intervenes with regards to meeting our low-cost healthcare objective for the under-served community as a policy measure to protect the interest of public health amidst the pandemic situation, instead of merely developing a strong profit-oriented model.