

## **Autonomous institute under DST develops revolutionary device to screen TB**

Sree Chitra Tirunal Institute for Medical Sciences and Technology (SCTIMST), an Institute of National Importance under the Department of Science and Technology, has developed a novel point-of-care device for screening tuberculosis (TB) of the lung. This innovation uses the technique of isothermal amplification of DNA, which does not require expensive equipment. The presence of disease-causing bacterial DNA is detected using an innovative spectral reader (patent pending), which makes its detection faster than the currently used devices. Detection of the bacterial DNA by this technique has high specificity (98%), meaning that there the possibility of false-negative results is very low.

Lung TB is one of the major diseases affecting a large population of people in our country. Technology innovations are essential to facilitate screening a large population at a minimum cost in order to achieve the goals of the country's TB eradication programme. The currently used techniques for TB diagnosis are microscopic examination of sputum using special stains, Xpert MR/RIF assay, and TB lipoarabinomannan antigen tests. Each of these tests, however, has various limitations, including low specificity, high cost to establish and operate the equipment, and a certain level of expertise to run the test. The technology developed by SCTIMST addressed these problems and developed a point of care device which can deliver fast and accurate results.



SCTIMST has transferred this technology to a medical device industry partner in India. The technology has attracted the attention of ICMR and WHO. The expert committee members from the WHO and Ministry of Health, Government of India, have visited and verified the scientific claim. They have offered all the help in validating the technology. A multicentric trial at the national level has been planned to confirm its sensitivity and specificity in detecting TB, causing bacteria. If the technology performs as expected, it will be one of the most affordable and rapid techniques that could be placed in primary health centers for fast and efficient screening for TB. It can make a substantial contribution in achieving the national goal of eradicating TB by the year 2025.