

Thailand accelerates development of innovative COVID-19 screening kits

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A research team led by Assoc. Prof. Dr. Sanchai Payungporn, Department of Biochemistry, Faculty of Medicine, Chulalongkorn University in Thailand, has accelerated the development of innovative COVID-19 screening kits – “COVID-19 SCAN” that are convenient, fast, inexpensive, with efficiency, accuracy close to the real-time PCR standards mandated by the Ministry of Public Health.

The distinctive characteristics of the innovative COVID-19 SCAN kit are that it is a molecular test similar to Real-time PCR, which can be used for both throat and saliva swab samples.

The advantage of using saliva samples is that they are easy to collect and have a high infection detection rate within the first 11 days of symptoms. The collection does not cause irritation compared to nasal swabs, so it can be done as often as needed. The processing time is approximately 90 minutes – 2 hours depending on the sample volume.

The COVID-19 SCAN kits use genomic DNA extraction and propagation process under a single temperature. Then the specific genetic material is detected by the CRISPR-Cas12a system, and if it is positive, it would glow under a blue light transilluminator.

The efficacy of the COVID-19 SCAN in clinical diagnosis is 100% specificity, 96.23% sensitivity, and 98.78% accuracy. It also uses simple tools and less storage space. It is suitable for provincial hospitals and general clinics that do not have expensive Real-time PCR machines, as well as proactive, off-site testing, such as in industrial estates.

The test kits are, however, not yet available for the general public for self-use, as they still need to be administered by expert medical personnel. The cost is approximately 50% lower than the Real-time PCR test.