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The molecular detection of infectious disease through lateral-flow dipstick analysis combined with loop-mediated isothermal amplification

In the present methods for molecular detection include normal or nested polymerase chain reaction (PCR) followed by electrophoresis, real-time PCR assay. These techniques entail various disadvantages such as high cost, long assay time or use of toxic substances. Novel loop-mediated isothermal amplification (LAMP) permits DNA to be amplified rapidly at a constant temperature. Here, a LAMP procedure was blended

with a chromatographic lateral-flow dipstick (LFD) specifically and rapidly under isothermal condition and then the DNA amplicon hybridized to an FITC-labeled probe for 5 min was analyzed at the LFD test line 5 min after application. Based on its sensitivity, specificity, rapid, cost effective, easy to use, and convenience, LAMP-LFD could be suitable for use in early detection of disease.

Biography

Thongchai Kaewphinit received the MSc in Biomedical Science from Srinakharinwirot University (SWU), Thailand in 2007, and PhD in Molecular Biology from SWU in 2010. Recently, he is a Lecturer of Innovative Learning Center, SWU. Biosensor, nanotechnology, molecular biology and applied microbiology are his current research field. He has published more than 12 papers in refereed journals.

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