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Analysis of a Reverse Transcription Loop-mediated Isothermal Amplification (RT-LAMP) for Yellow fever diagnostic.

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Summary

Yellow Fever virus (YFV) is an important human pathogen in tropical areas of Africa and South America. Although an efficient vaccine is available and has been used since the early 1940's, sylvatic YFV transmission still occurs in forested areas where anthropogenic actions are present, such as mineral extraction, rearing livestock and agriculture, and ecological tourism. In this context, two distinct techniques based on the RT-PCR derived method have been previously developed, however both methods are expensive due to the use of thermo cyclers and labeled probes. We developed isothermal genome amplification, which is a rapid, sensitive, specific and low cost molecular approach for YFV genome detection. This assay used a set of degenerate primers designed for the NS1 gene and was able to amplify, within 30 minutes in isothermal conditions, the YFV 17D vaccine strain derived from an African wild prototype strain (Asibi), as well as field strains from Brazil, ,other endemic countries from South and Central America, and the Caribbean.. The generic RT-LAMP assay could be helpful for YFV surveillance in field and rapid response during outbreaks in endemic areas.

Key-words: *Diagnostic, Yellow fever virus*, RT-LAMP, genome detection