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The development of lyophilized loop-mediated isothermal amplification reagents for the detection of *Coxiella burnetii*

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Coxiella burnetii, the bacterium causing Q fever, is an obligate intracellular biosafety level 3 agent. PCR based diagnostic assays have been developed for detecting *C. burnetii* DNA in cell cultures and clinical samples. Because PCR method requires specialized equipment and extensive end user training, it is not suitable for routine work especially in the resource-constrained areas. We have developed a loop-mediated isothermal amplification (LAMP) assay with lyophilized reagents to detect the presence of *C. burnetii* in patient samples. This method can be performed at a single temperature around 60°C with a heating block. The sensitivity of this LAMP assay is very similar to PCR method with a detection limit at about 25 copies. The amplified DNA products were visualized with a naked eyes using hydroxynaphthol blue or addition of SYBR green dye in the reaction with a UV lamp. The stability of the lyophilized reagents were tested and followed for 24 months, 18 months, and 42 days when the reagents were stored at 4°C, 25°C, and 37°C, respectively. The results showed the lyophlized reagents retain the same reactivity as freshly prepared reagents when stored at 4°C for 24 months, 25°C for 28 days, and 2 days at 37°C. The lyophilized LAMP reagents are perfect to be used in resource-limited settings where Q fever is endemic.

Biography

Hua-Wei Chen has received his PhD from the University of Maryland at College Park and completed his Post-doctoral studies from National Cancer Institute. He is a Member of the American Society for Rickettsiology. He has been working in the Viral and Rickettsial Diseases Department since 2004 on Rickettsioses, and other closely related diseases. He has published more than 25 papers in reputed scientific journals.

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