應用螢光即時環形核酸增幅法檢測 Q 熱

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摘要

環形核酸增幅法利用四個引子，可辨識目標序列上的六個位置，並於短短 30-60 分鐘裡，只要維持溫度在 60-65℃，便可將數個板模做大量的增幅，核酸合成之副產物焦磷酸根與反應液中的二價金屬離子結合，形成不可溶之鹽類，致使反應液呈現混濁。應用特殊且高準確度的環形核酸增幅法於 Q 熱病原之檢測，並發展添加螢光嵌合化合物鈣黃綠素，目前應用於 Lightcycler 敏感度可達 5 個板模/反應，期以應用迅速且更方便於肉眼判別之檢測法，對 Q 熱的防疫工作及提供臨床防治機關於疾病診斷產生實質助益。

Application of real-time Loop-mediated isothermal amplification (LAMP) for diagnosis of Q fever

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Abstract

The loop-mediated isothermal amplification method uses 4 primers to recognize 6 positions on the target sequence and has the ability of amplifying a few copies of DNA to large amount of copies within an hour under isothermal condition. This reaction releases pyrophosphate from dNTP. The pyrophosphate reacts with magnesium ion causing the change of turbidity for visual identifying. By combining the simple, rapid and specific LAMP method and fluorescent metal indicator (Calcein) detection technique enable presentation of remarkably clear results. The limitation of application on lightcycler machine is 5 copies per reaction, so far. The established analysis may be helpful for diagnosis and prevention of Q fever.