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강연 제목: 차세대 분자진단을 위한 신속 PCR 시스템

Rapid polymerase chain reaction for next-generation molecular diagnostics

Abstract

Over the last decade, polymerase chain reaction (PCR) has become the gold standard method for detecting target nucleic acids (NAs) owing to their high sensitivity and specificity. However, the limitations of traditional PCR approaches have become more apparent because of their long turn-around time (TAT), bulky-size instruments, and complicated operation protocols. Here, we propose an ultrafast PCR method for the rapid precision detection of target NAs. Various technologies, such as high-powered Peltier-based and photothermal effect-based thermocycling approaches, have been developed to improve the thermocycling (i.e., heating/cooling) rate to achieve ultrafast PCR. These ultrafast PCR approaches will be desirable to accelerate the application of NA detection, such as various viral and bacterial infections. Thus, our PCR approaches will provide new opportunities to develop a nearly instantaneous molecular diagnostic workflow for personalized and preventive medicine at point-of-care testing (POCT).

Brief Biosketch
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