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(57) Abstract :
The present invention relates to a real-time PCR diagnostic pen (100) designed for low-resource clinical and veterinary applications. The device integrates a disposable microfluidic cartridge (110), thermal cycling unit (120), and fluorescence detection module (130) within a portable pen-like housing (101). Wireless data transmission module (140) enables remote result sharing, while the power unit (150) supports off-grid operation. The invention offers multiplex pathogen detection, low reagent usage, and rapid results, making it suitable for point-of-care diagnostics in remote or under-equipped settings.

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