

바이오 메디컬 소재를 이용한 감염성 질환 진단을 위한 새로운 전략(New strategy for molecular diagnostics using biomedical materials in Emerging Infectious Diseases)

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Medical device, especially molecular diagnostic, is defined to make immediate and informed decisions about patient for earlier diagnosis and disease management in primary care, which leads potentially to improved patient's management and outcome, cost-effectiveness, and reducing health inequalities. Recently, we have developed two novel techniques; a versatile Dimethyl adipimidate/Thin film based Sample processing (DTS) procedure as nucleic acids extraction technique without centrifugation step, and an isothermal solid-phase amplification/detection (ISAD) technique for the detection of biomarkers in human diseases. DTS is useful for the extraction of DNA/RNA from a variety of sources, including cells, bacteria, blood, and urine in a single microfluidic channel. In addition, ISAD can be performed without labeling in real-time by utilizing both silicon microring-based solid-phase amplification and isothermal amplification within 20 min. Therefore, an integrated device of two novel techniques will be useful for diagnosis of Emerging Infectious Diseases with simplicity, rapidity, and affordability.