

Stretch-driven microfluidic chip for nucleic acid detection

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Abstract

Molecular diagnosis is an essential means to detect pathogens. The portable nucleic acid detection chip has excellent prospects in places where medical resources are scarce, and it is also of research interest in the field of microfluidic chips. Here, the paper developed a new type of microfluidic chip for nucleic acid detection where stretching acts as the driving force. The sample entered the chip by applying capillary force. The strain valve was opened under the action of tensile force, and the spring pump generated the power to drive the fluid to flow to the detection chamber in a specific direction. The detection of COVID-19 was realized on the chip. The RT-LAMP amplification system was adopted to observe the liquid color in the detection chamber to decide whether the sample tested positive or negative qualitatively.

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