

## 基于C8051F020的多通道手持式PCR扩增仪的设计

作者: 丁国杰, 赵湛, 彭年才, 李红东, 于留波

单位: 中国科学院电子学研究所

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摘要:

设计旨在研制一种新型的手持式PCR扩增仪, 利用微电子机械系统(MEMS)技术制作PCR微加热芯片, 采用聚二甲基硅氧烷(PDMS)材料制作一次性使用的微反应腔阵列, 以C8051F020微控制器为核心搭建一个可以同时进行多路扩增的温控系统。它从根本上克服了传统台式PCR扩增仪的缺点, 具有体积小、重量轻、反应速率快、节省反应试剂等诸多优点。

关键词: 聚合酶链式反应; 手持式; 微电子机械系统; 聚二甲基硅氧烷

## The Design of Multiplex Handheld PCR Amplification Based on C8051F020

**Author's Name:**

**Institution:**

**Abstract:**

A new type handheld PCR amplification is designed, in which, PCR microchip is fabricated with MEMS technology and the one-off microarray is made of PDMS material. C8051F020 microcontroller is made as a core to build a temperature-controlled system, which can carry out several amplifications synchronously. It can overcome the defects of traditional desktop PCR amplification and its advantages include: small volume, light weight, fast reaction velocity and saving reaction reagent.

**Keywords:** PCR; Handheld; MEMS; PDMS

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