Electronic Supplementary Information

Flow-through polymerase chain reaction inside a seamless 3D helical microreactor fabricated utilizing a silicone tube and a paraffin mold

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[Table S1] Some examples of previously developed flow-through PCR microdevices

Related references	Dimension	Material	Advantages	Disadvantages
This study	3D	Silicone tube	• Simple and fast fabrication • Small footprint • Use of a single heater	• Height of the microreactor needs to be precisely controlled
Anal. Biochem. 415, 87 (2011)	3D	PTFE tube	• Construction of an integrated system • Low cost • Fast reaction (10–60 min)	• Use of three heaters • Bulky • High power consumption
Analyst 137, 2069 (2012)	3D	PDMS–glass	• Use of a single heater • Multiplex PCR • Fast reaction (< 25 min)	• Complicated fabrication • Require calculation of the microdevice curvature for optimized annealing temperature
Anal. Bioanal. Chem. 400, 2053 (2011)	3D	PDMS–glass	• Use of a single heater • Fast reaction (15–50 min)	• Complicated fabrication • Require a lot of punching for alignment
Analyst 137, 983 (2012)	2D	PDMS–glass	• No use of a syringe pump for sample injection • Fast reaction (< 30 min)	• Require two heaters • Designing of spiral channel structure to equalize sample residence time
Sens. Actuators B 130, 836 (2008)	2D	PMMA–PC	• Improved heat tolerance • Rapid fabrication • Low cost	• Require high temperature for bonding PMMA and PC (165°C, 30 min) • Require CO_2-laser micromachining for engraving on PMMA • Require complicated temperature control
J. Micromech. Microeng. 17, 1810 (2007)	2D	PDMS–glass	• Fast reaction (8–30 min) • Low cost	• Complicated fabrication of microheater and microsensor
Chem. Eng. J. 101, 151 (2004)	2D	PDMS–glass	• Reproducible results • Amplification of large size target (1,460 bp) possible	• Complicated temperature control system needed (six pairs of heaters and sensors) • Long reaction time (85 min)
Anal. Chem. 81, 302 (2009)	2D	PMMA–PMMA	• Fast reaction (17 min) • Use of a single DNA molecule for amplification	• Complicated design of the microdevice • Complicated temperature control system
Analyst 136, 2287 (2011)	2D	PDMS–glass	• Simple farbrication • Small footprint • High reproducibility	• Use of multiple heaters • High power consumption