

Supplementary Information

A point-of-care microfluidic biosensing system for rapid and ultrasensitive nucleic acid detection from clinical samples

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Table S1. Estimated cost for the point-of-care device.

Disposable Part	Cost (\$/chip)
Microfluidics	0.4
Microheater	0.4
Screen-printed electrode	4.5
QuickExtract™ lysis buffer	1
RNA reporter	3.5
CRISPR assay	~3
In total	~12.8

Reusable Part	Cost (\$/EA)
Battery box	1.2
Battery	1
In total	2.2

Table S2. RNA oligo sequences used in this study.

Sequence name	Sequence (5' → 3')	Related figures
Target RNA	GUCUGAUAAUGGACCCCAAAAUCAGCGAAAUG CACCCCGCAUUACGUUUGGUGGACCCUCAGAU UCAACUGGCAGUAACCAGAAUGGAGAACGCAG UGGGGCGCG	Figure 3, Figure 4, Figure 5
crRNA	GACUACCCCAAAAACGAAGGGGACUAAAACAA UCUGAGGGUCCACCAAACGUAAUGCG	Figure 3, Figure 4, Figure 5
Reporter RNA	/5ThioMC6- D/UUUUUUUUUUUUUUUUUUUUU/3MeBIN/	IDT: Figure 3 and Figure 4 GeneLink: Figure 5
RSV	UGGGGCAAUAUGGAAACAUAACGUGAACAAAC UUCACGAAGGCUCCACAUAACACAGCUGCUGUU CAAUACAAUGUCUUAGAAAAAGACGAUGACCC UGCA	Figure 3D
INV A	CAAUCUUGUCACCUCUGACUAAGGGAAUUUUA GGAUUUGUGUUCACGCUCACCGUGCCCAGUGA GCGAGGACUGCAGCGUAGACGCUUUAUCCAAA AUGC	Figure 3D
INV B	UCAACUCACUCUUCGAGCGUCUCAAUGAAGGA CAUUCAAAGCCAAUUCGAGCAGCUGAACUGC GGUGGGAGUCUUAUCCCAAUUUGGUCAAGAGC ACCG	Figure 3D

/5ThioMC6-D/: Thiol Modifier C6 S-S modification

/3MeBIN/: 3' Methylene blue

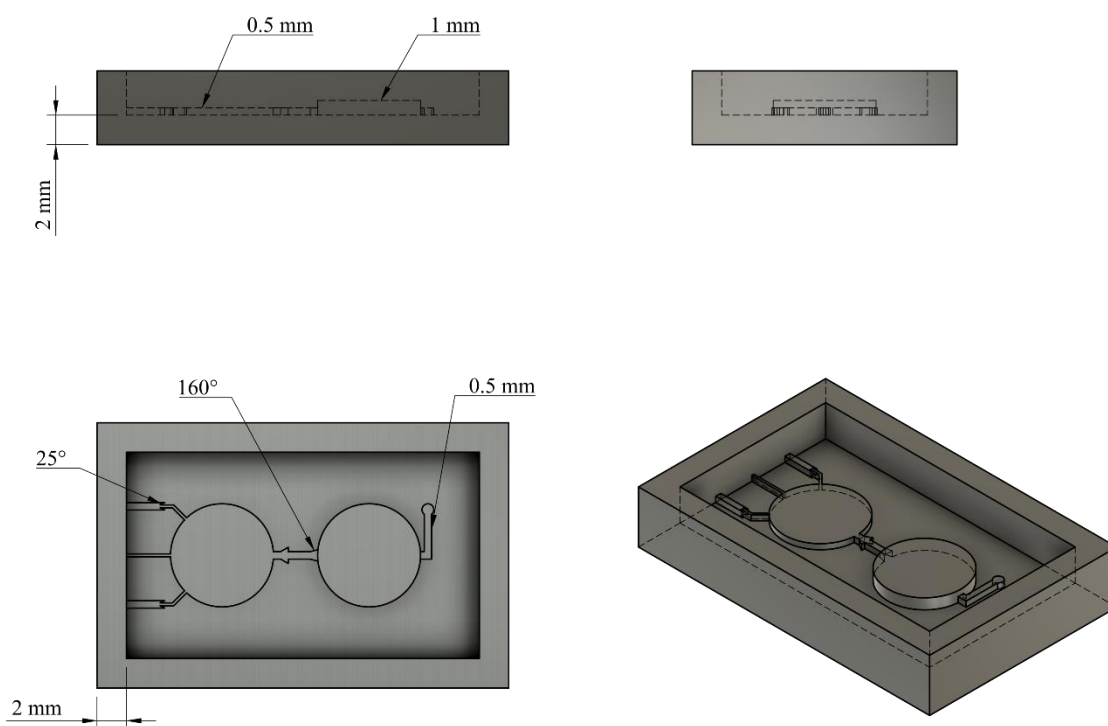


Figure S1. The 3D mold for making microfluidic devices. The 3D model was created using Autodesk Fusion 360 (Autodesk, Inc. CA, USA) and later manufactured by a form2 3D printer.

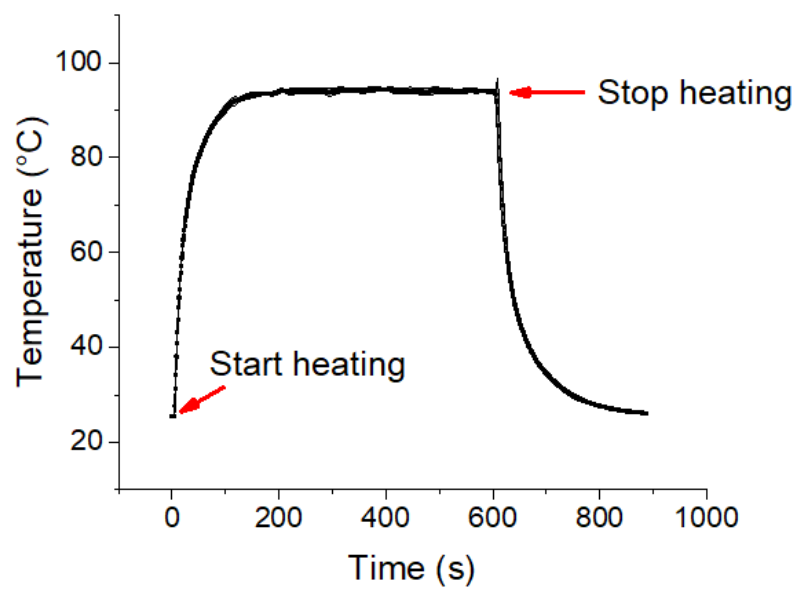


Figure S2. The real-time temperature in the thermal lysis reservoir. The power was turned off 10 minutes after the activation of the heater.