Electronic Supplementary Material (ESI) for Lab on a Chip.

Portable Rotary PCR system for Real-time detection of Pseudomonas aeruginosa in milk

Weidu Song, Chuanhao Zhang, Huichao Lin, Taiyi Zhang, Haixia Liu, Xiaowen Huang*

State Key Laboratory of Biobased Material and Green Papermaking, Department of Bioengineering, Qilu University of Technology (Shandong Academy of Sciences), Jinan 250300, China

songweidu2020@126.com (W.S.); zhangchuanhao66@126.com (C.Z.); linhuichao2020@gmail.com (H.L.); zty2020bio@126.com (T.Z.); 10431211092@stu.qlu.edu.cn (H.L.)

* Correspondence: huangxiaowen2013@gmail.com

Table S1. Universal PCR primer sequence for identification of bacteria and PCR primer sequence for identification of Pseudomonas.

Category	Primer Name	Sequences
Universal PCR primer sequence for identification of bacteria	27F	AGAGTTTGATCCTGGCTCAG
	1492R	TACGACTTAACCCCAATCGC
PCR primer sequence for identification of Pseudomonas	Lectin-F	CAAACCGGAGGAAGGTGG
	Lectin-R	GCGATTCCGACTTCACGC

Figure S1 Structure of a portable centrifuge for capillary tubes.

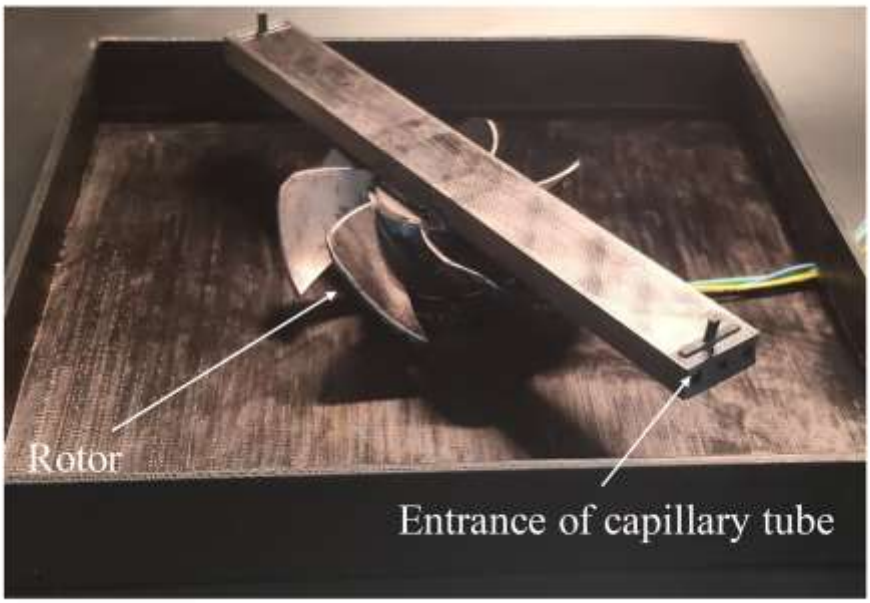
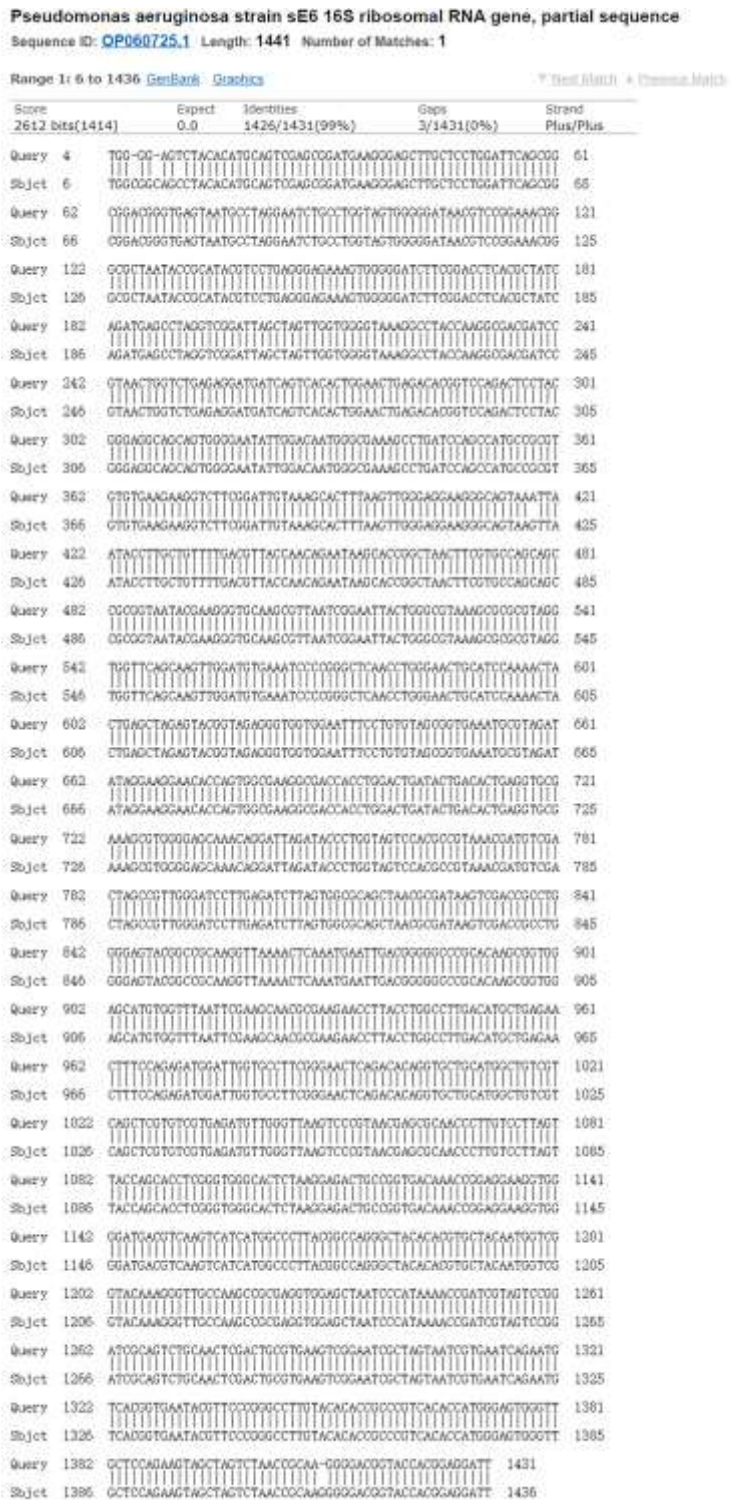


Figure S2 Blast results of PCR amplified product with 16s rRNA gene as template.



Pseudomonas aeruginosa strain sE6 16S ribosomal RNA gene, partial sequence

Sequence ID: OP060725.1 Length: 1441 Number of Matches: 1

Range 1: 6 to 1436 GenBank Graphics

Score	Expect	Identities	Gaps	Strand
2612 bits(1414)	0.0	1426/1431(99%)	3/1431(0%)	Plus/Plus

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Query  1082  TACCAGCACCTCGGGTGGGCACTCTAAGGAGACTGCCGGTGACAAACCGGAGGAAGGTGG  1141
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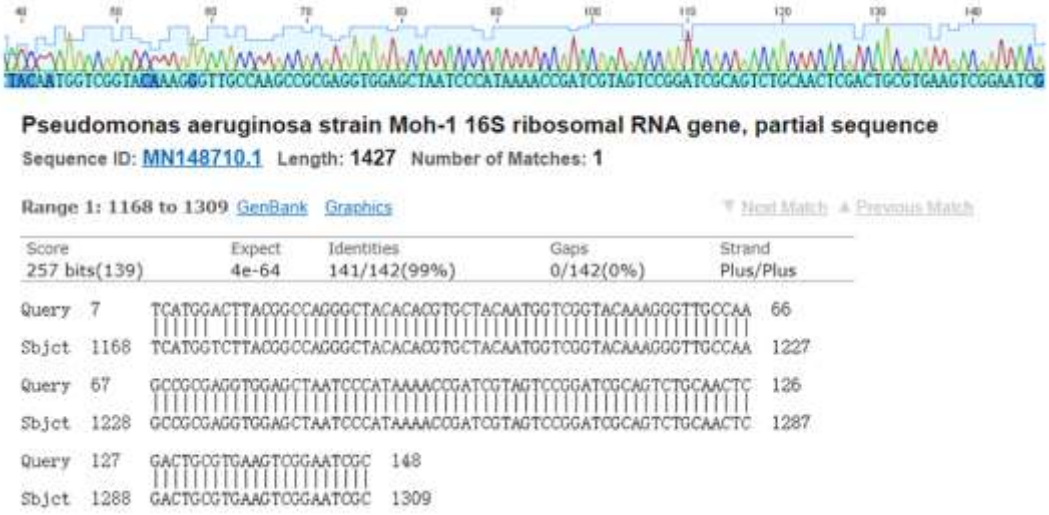
Figure S3 Sequencing and blast results of PCR amplification with target gene as template.



Pseudomonas aeruginosa strain Moh-1 16S ribosomal RNA gene, partial sequence

Sequence ID: MN148710.1 Length: 1427 Number of Matches: 1

Range 1: 1168 to 1309 GenBank Graphics Next Match Previous Match

Score	Expect	Identities	Gaps	Strand
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Sbjct  1228  GCCGCGAGGTGGAGCTAATCCCATAAAACCGATCGTAGTCCGGATCGCAGTCTGCAACTC  1287

Query  127   GACTGCGTGAAGTCGGAATCGC  148
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Sbjct  1288  GACTGCGTGAAGTCGGAATCGC  1309
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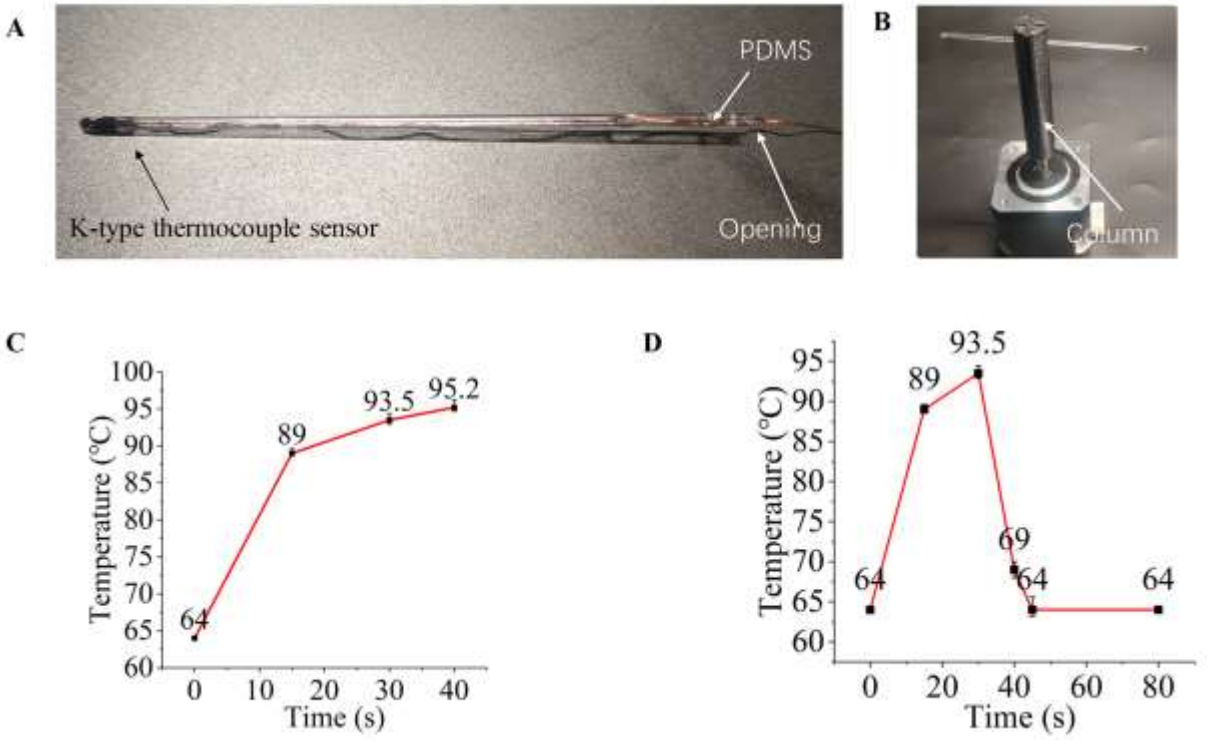
Figure S4 Research on the temperature of the solution in the capillary tube.



A) Insert the k-type thermocouple sensor into the PCR solution while sealing the outlet with PDMS. **B)** Flame melts closed capillary tube.
C) Real-time temperature image of PCR solution rising from annealing/elongation temperature to denaturation temperature within the 40s.
D) Real-time temperature change of one cycle.

Figure S5 Temperature field distribution in the system between 0-1 min.

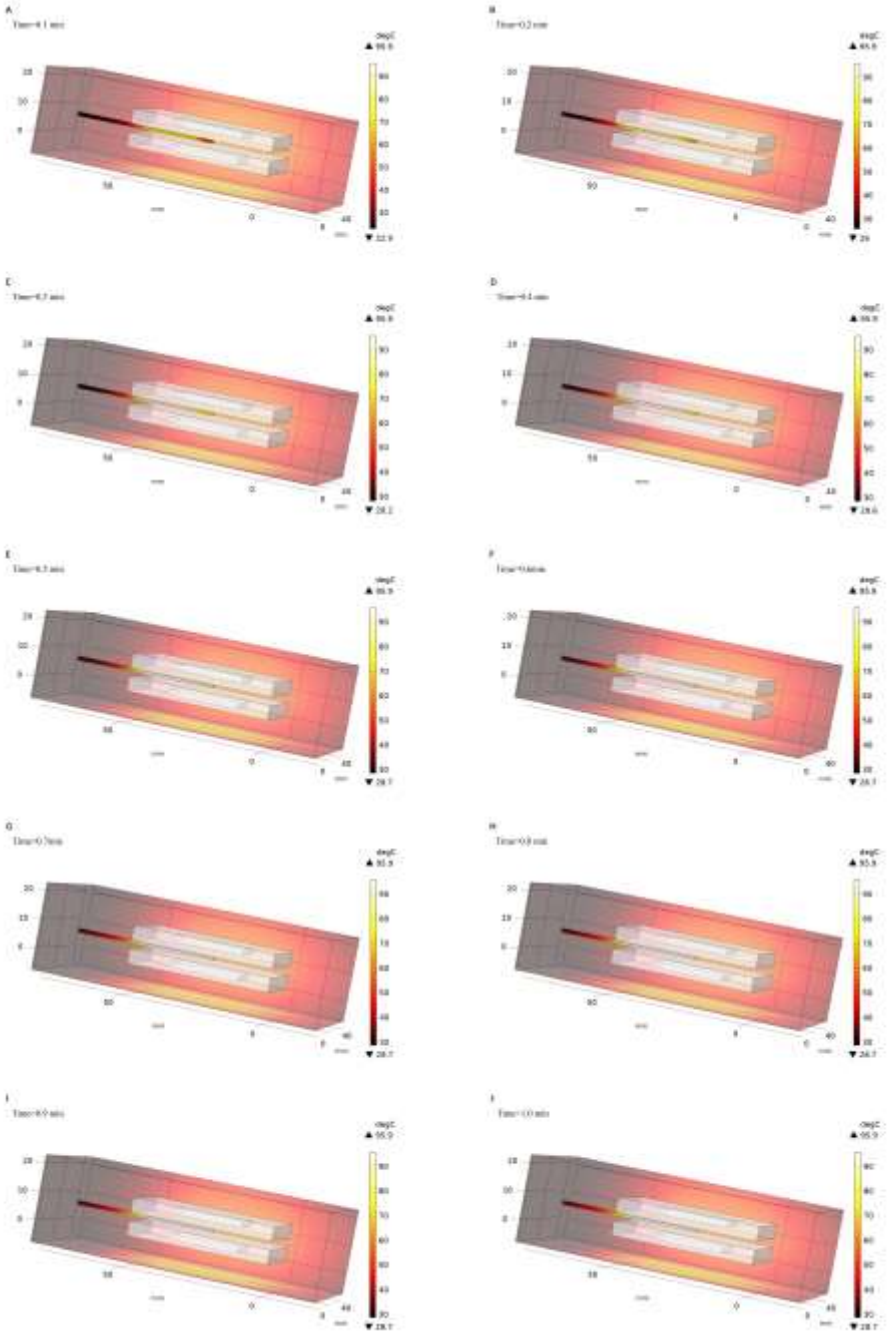


Figure S6 Comparison of experimental and simulated curves.

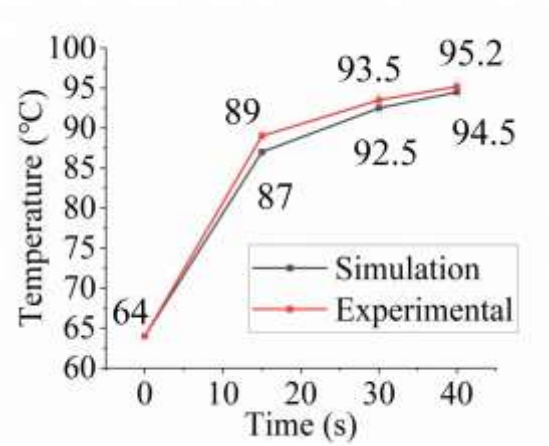
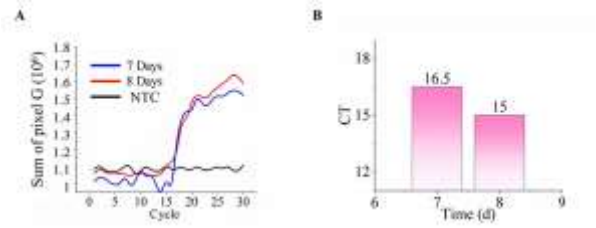


Figure S7 Amplification curve and its CT values.



A) Amplification curve of Pseudomonas aeruginosa 16S rRNA from refrigerated milk (7 and 8 days). **B)** CT values of amplification curve.