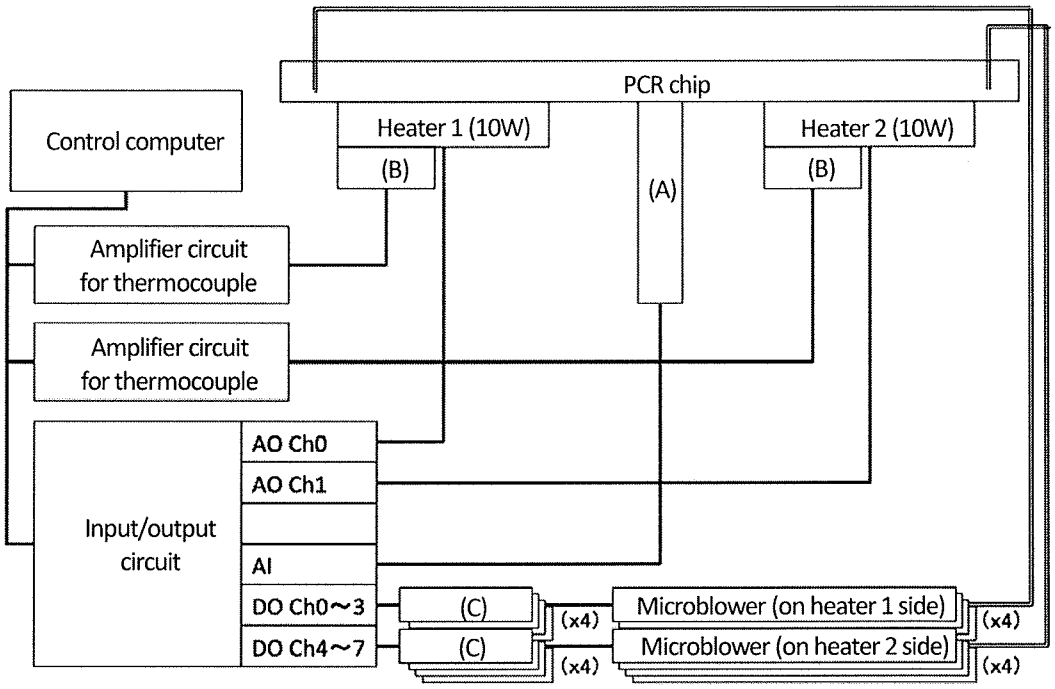
Fig. 1



(A) Fluorescence detector

(B) Thermocouple

(C) Oscillator circuit

Fig. 2

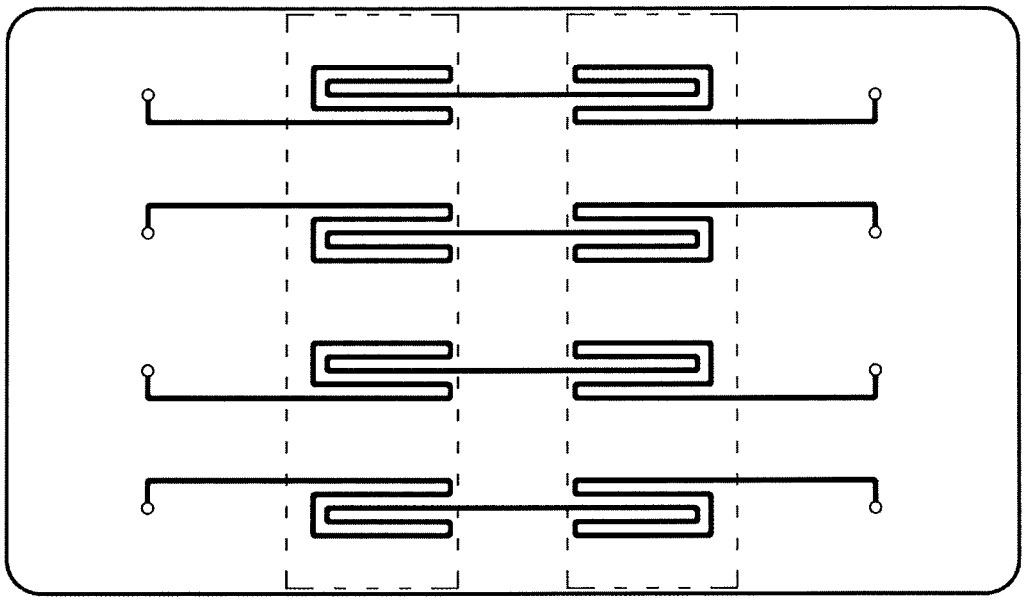


Fig. 3

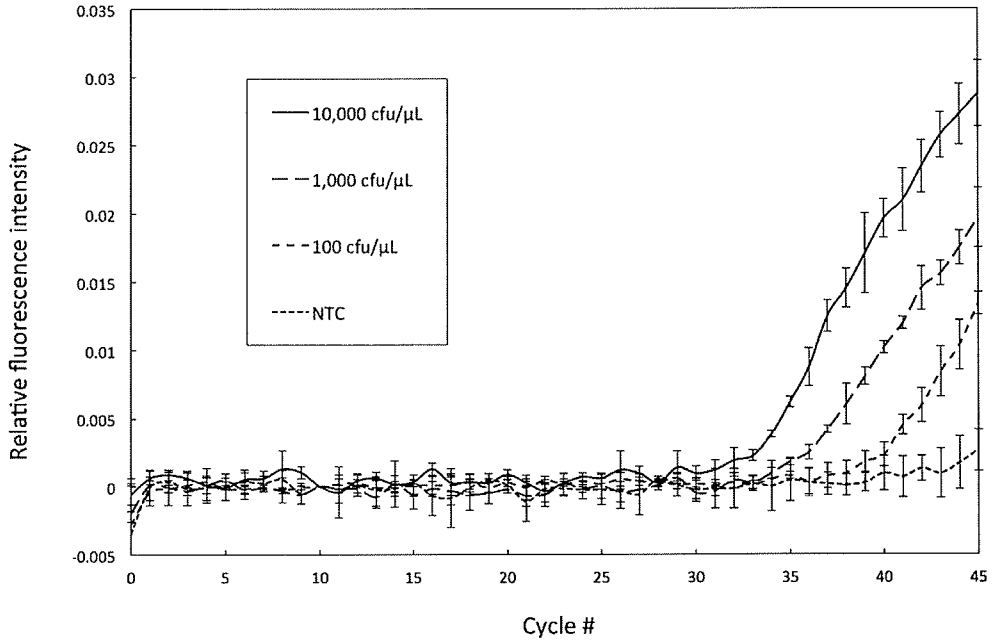

0.035
0.03
0.025
0.02
0.015
0.01
0.005
0
-0.005
Relative fluorescence intensity
10,000 cfu/μL
1,000 cfu/μL
100 cfu/μL
NTC
0
5
10
15
20
25
30
35
40
45
Cycle #

Fig. 4

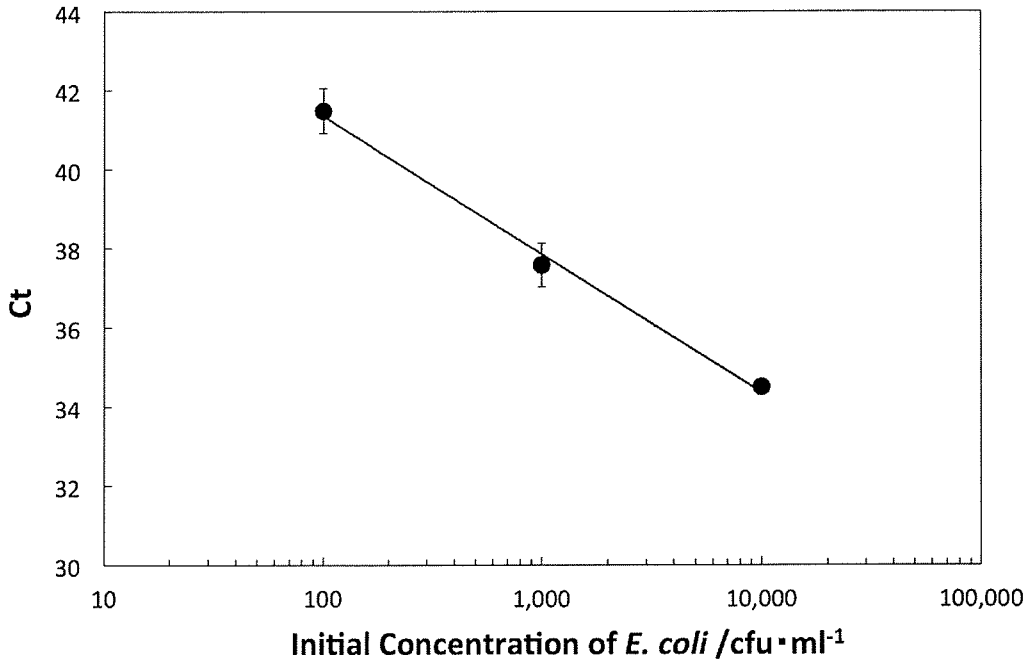

44
42
40
38
36
34
32
30
Ct
10
100
1,000
10,000
100,000
Initial Concentration of E. coli /cfu·ml-1

Fig. 5

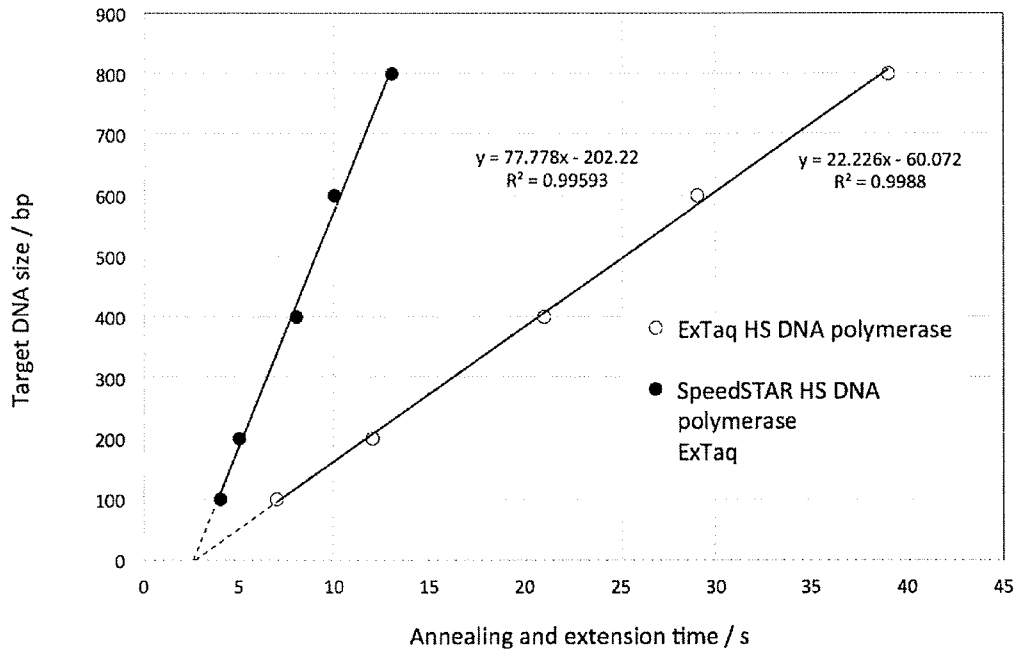

900
800
700
600
500
400
300
200
100
0
0
5
10
15
20
25
30
35
40
45
Target DNA size / bp
Annealing and extension time / s
y = 77.778x - 202.22
R² = 0.99593
y = 22.226x - 60.072
R² = 0.9988
ExTaq HS DNA polymerase
SpeedSTAR HS DNA polymerase
ExTaq

Fig. 6

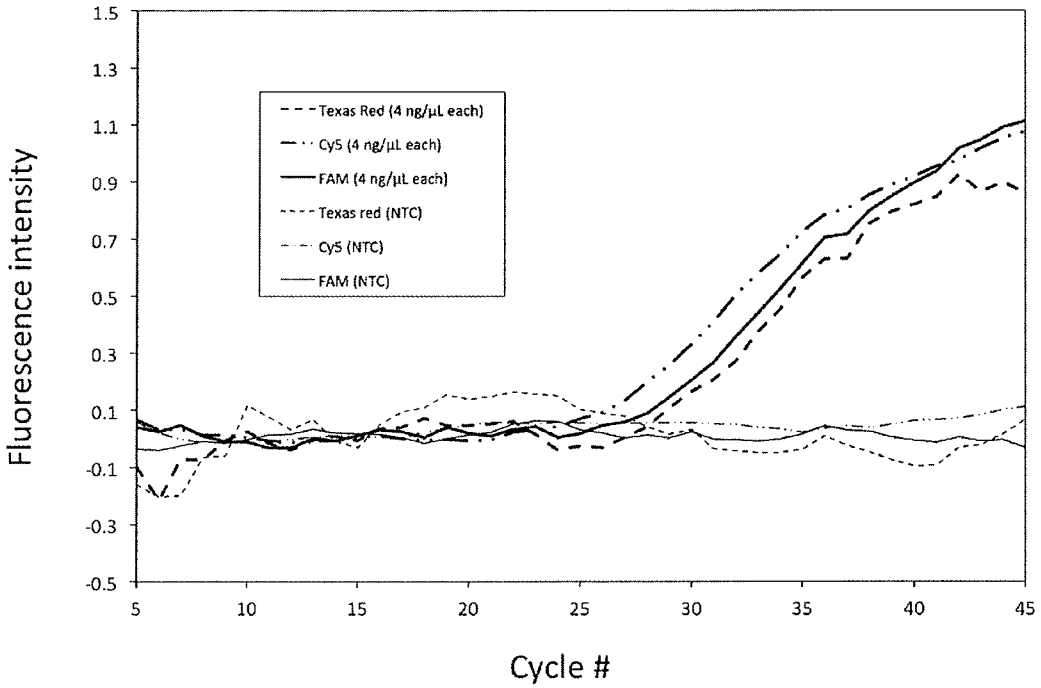

1.5
1.3
1.1
0.9
0.7
0.5
0.3
0.1
-0.1
-0.3
-0.5
5
10
15
20
25
30
35
40
45
Fluorescence intensity
Cycle #
Texas Red (4 ng/µL each)
Cy5 (4 ng/µL each)
FAM (4 ng/µL each)
Texas red (NTC)
Cy5 (NTC)
FAM (NTC)

Fig. 7

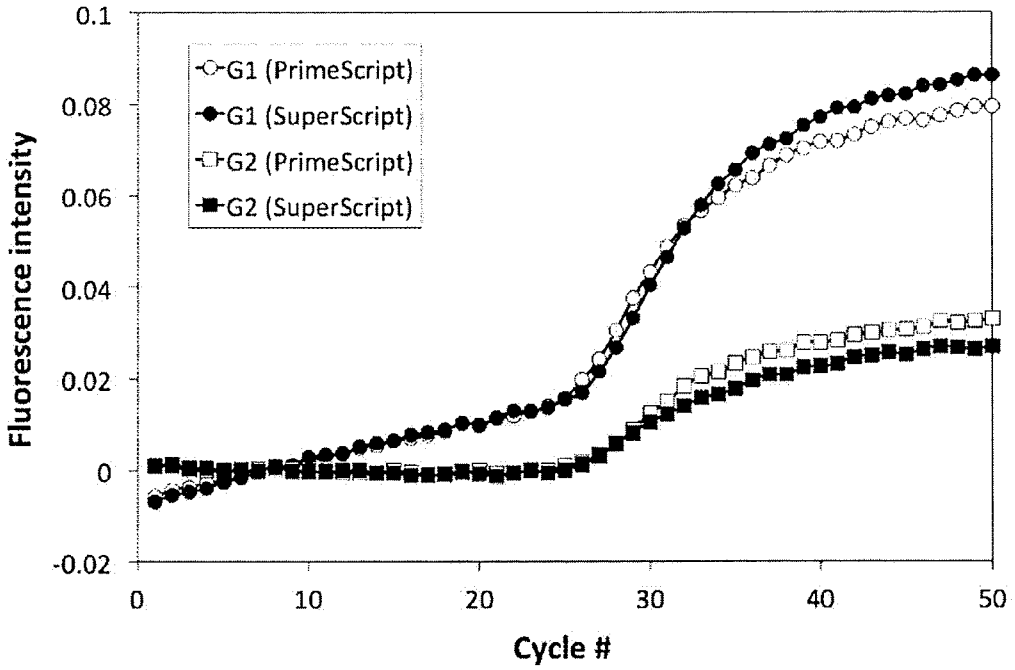

0.1
0.08
0.06
0.04
0.02
0
-0.02
Fluorescence intensity
G1 (PrimeScript)
G1 (SuperScript)
G2 (PrimeScript)
G2 (SuperScript)
0
10
20
30
40
50
Cycle #

Fig. 8

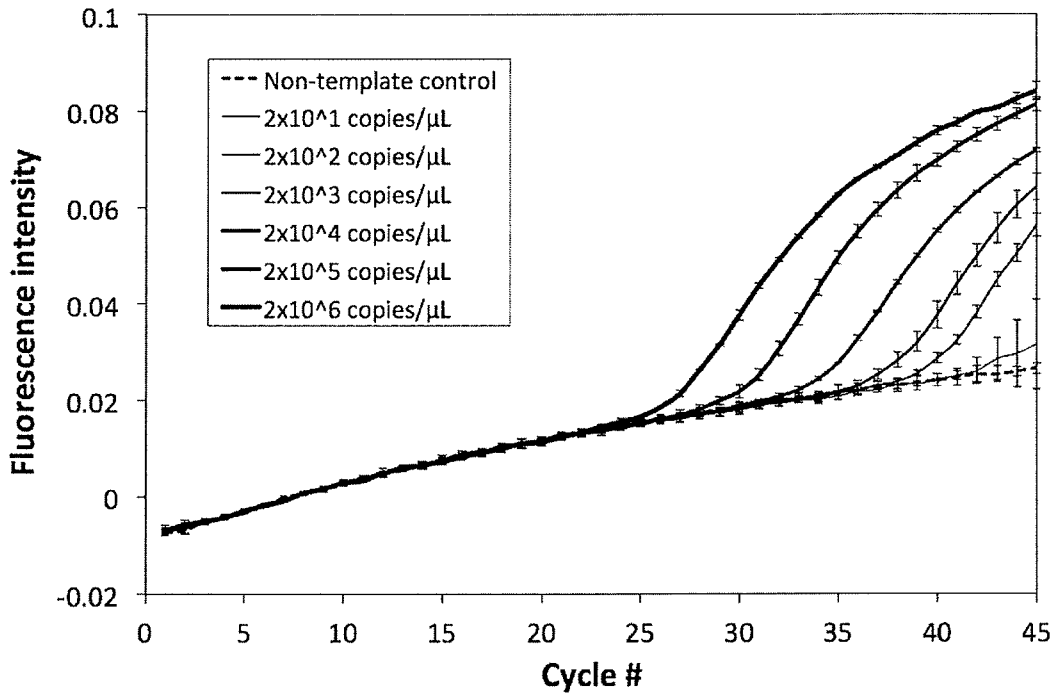
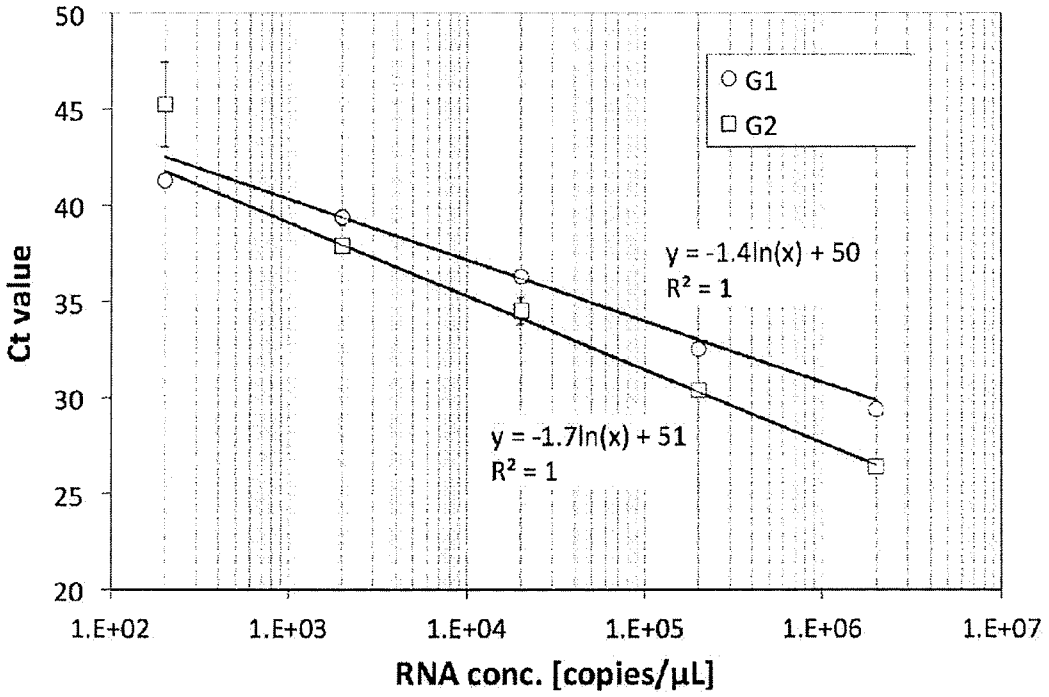

0.1
0.08
0.06
0.04
0.02
0
-0.02
Fluorescence intensity
Non-template control
2x10^1 copies/µL
2x10^2 copies/µL
2x10^3 copies/µL
2x10^4 copies/µL
2x10^5 copies/µL
2x10^6 copies/µL
0
5
10
15
20
25
30
35
40
45
Cycle #

Fig. 9


50
45
40
35
30
25
20
Ct value
1.E+02
1.E+03
1.E+04
1.E+05
1.E+06
1.E+07
RNA conc. [copies/µL]
G1
G2
y = -1.4ln(x) + 50
R² = 1
y = -1.7ln(x) + 51
R² = 1