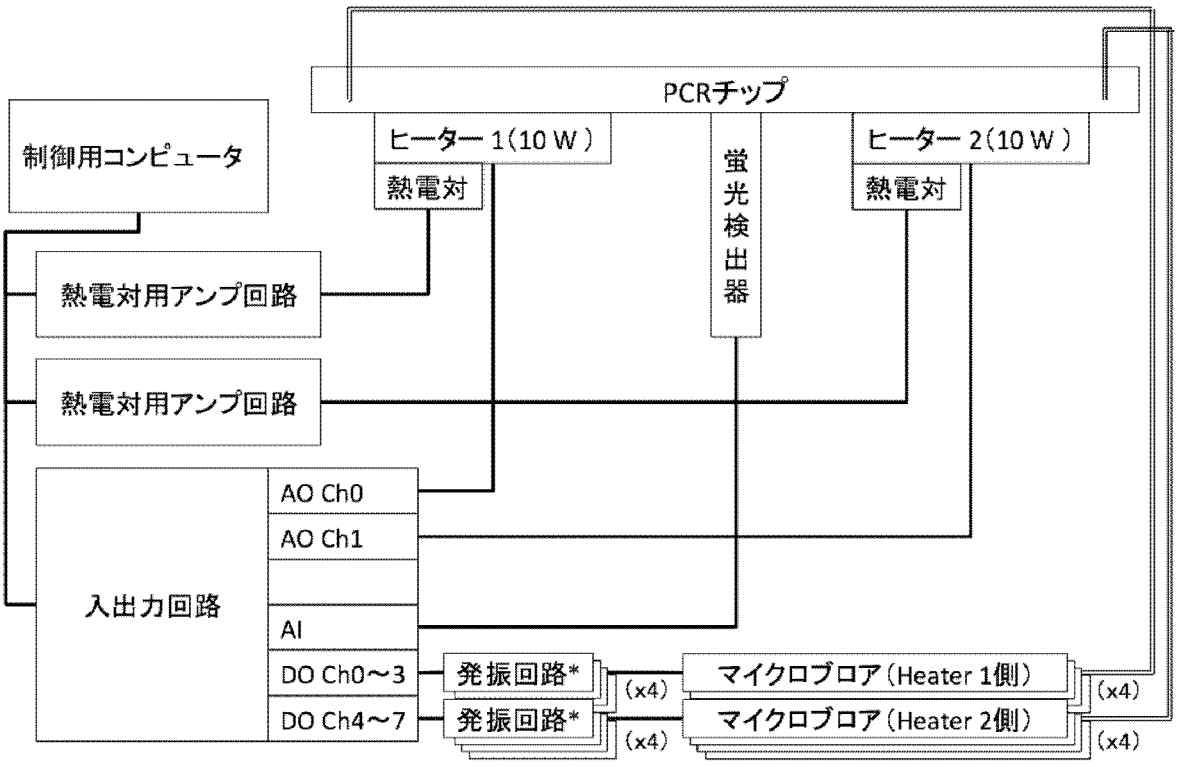
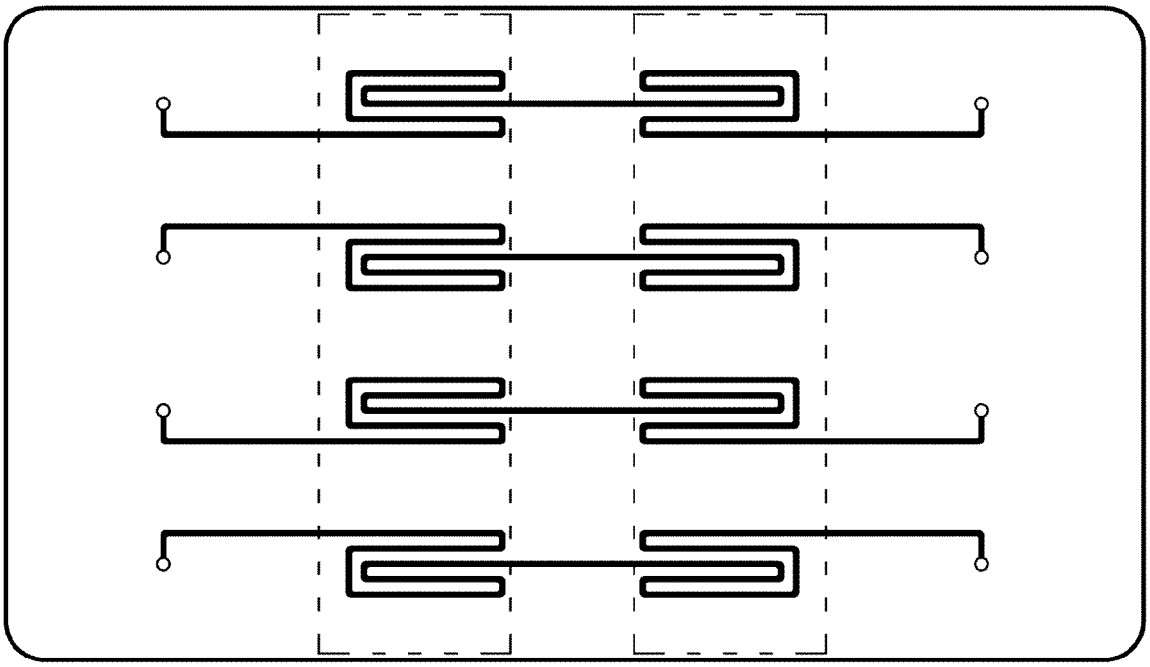
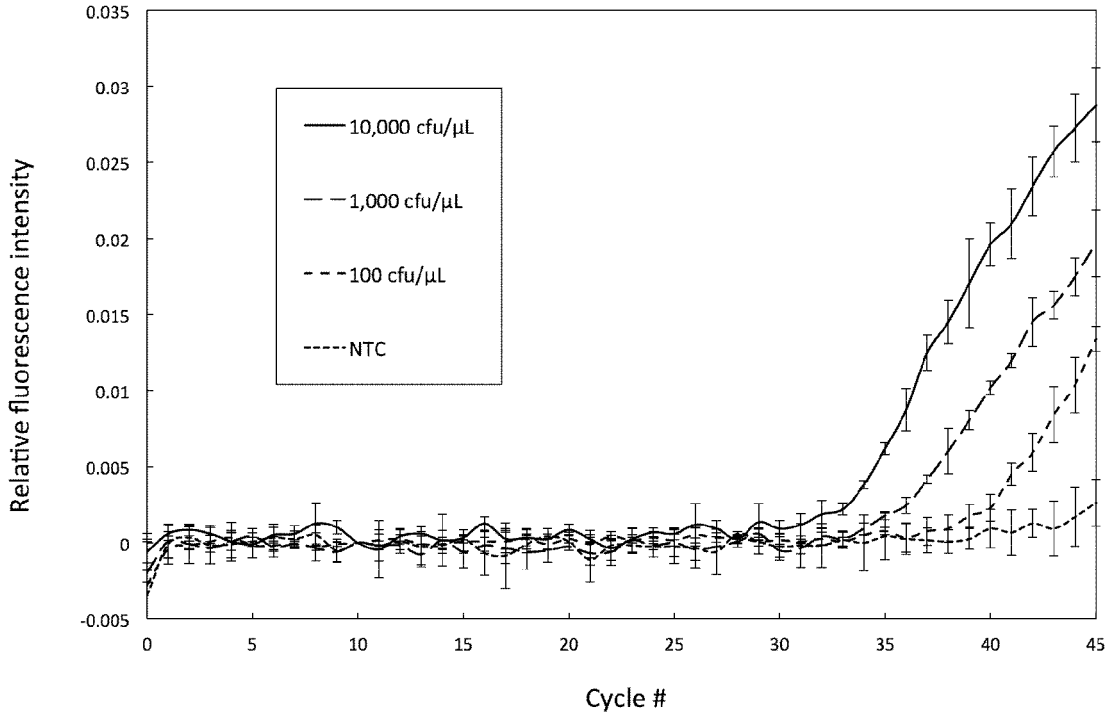
[図1]


PCRチップ
制御用コンピュータ
ヒーター 1(10 W)
熱電対
蛍光検出器
ヒーター 2(10 W)
熱電対
熱電対用アンプ回路
熱電対用アンプ回路
入出力回路
AO Ch0
AO Ch1
AI
DO Ch0～3
DO Ch4～7
発振回路*
発振回路*
(x4)
(x4)
マイクロブロア(Heater 1側)
マイクロブロア(Heater 2側)
(x4)
(x4)

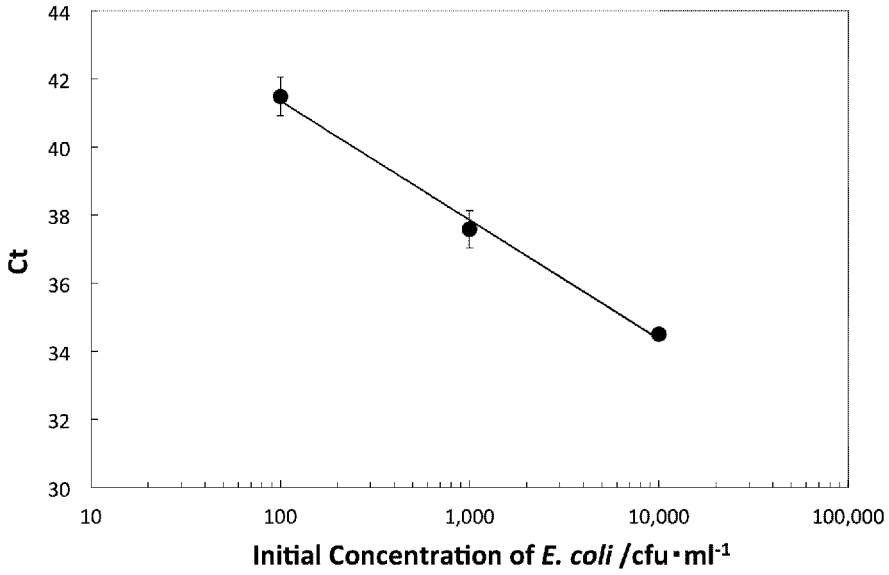
[図2]



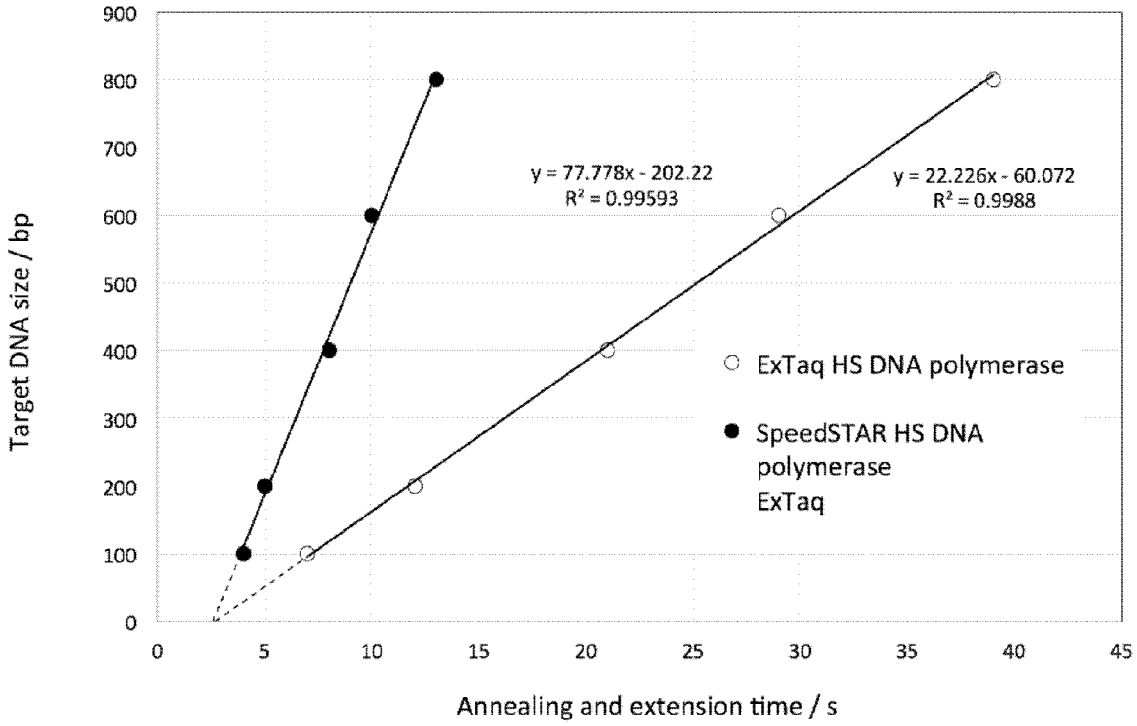
[図3]


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 #

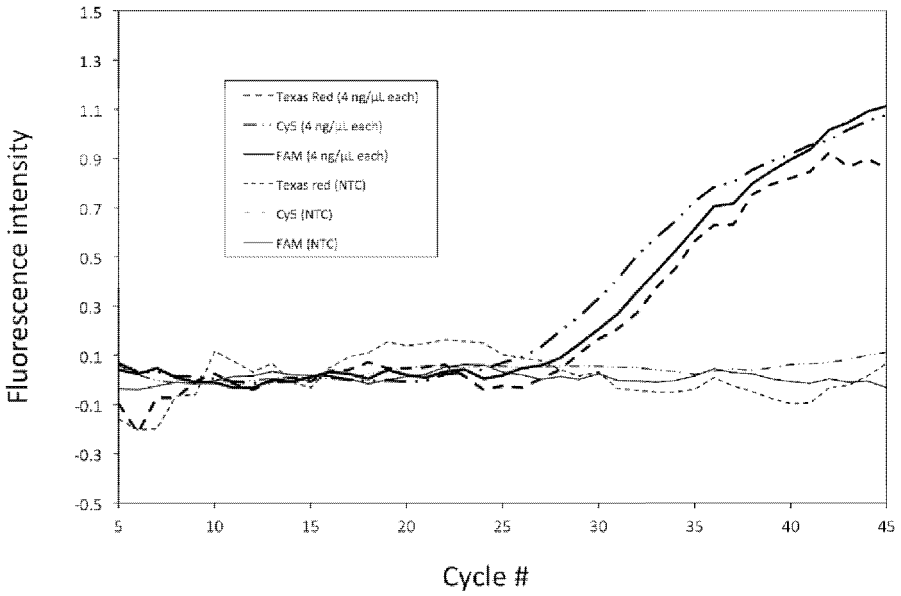
[図4]


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

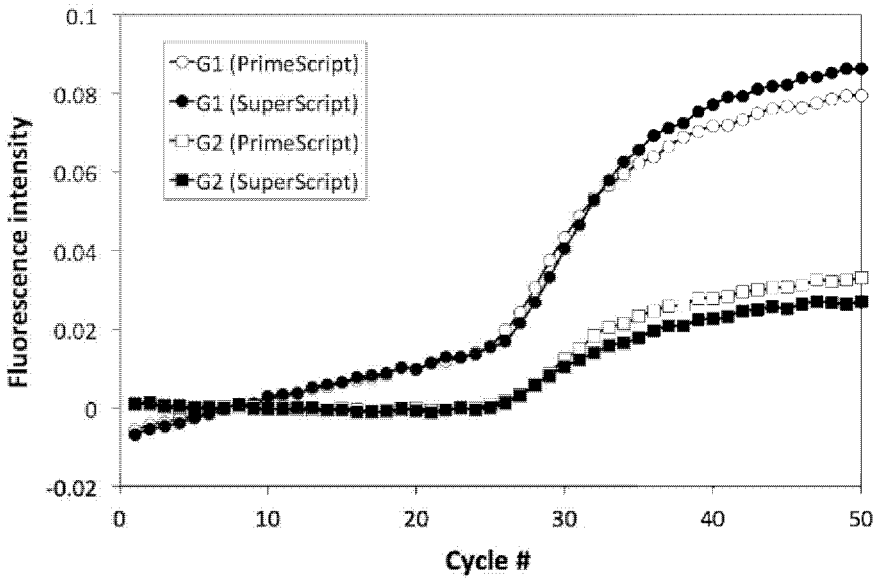
[図5]


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

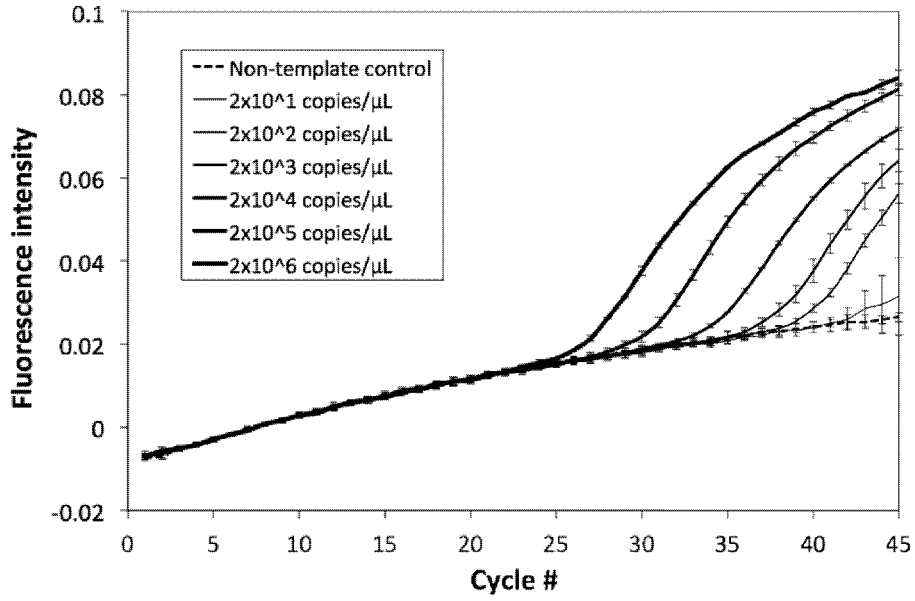
[図6]


Fluorescence intensity
Cycle #
Texas Red (4 ng/μL each)
CyS (4 ng/μL each)
FAM (4 ng/μL each)
Texas red (NTC)
CyS (NTC)
FAM (NTC)

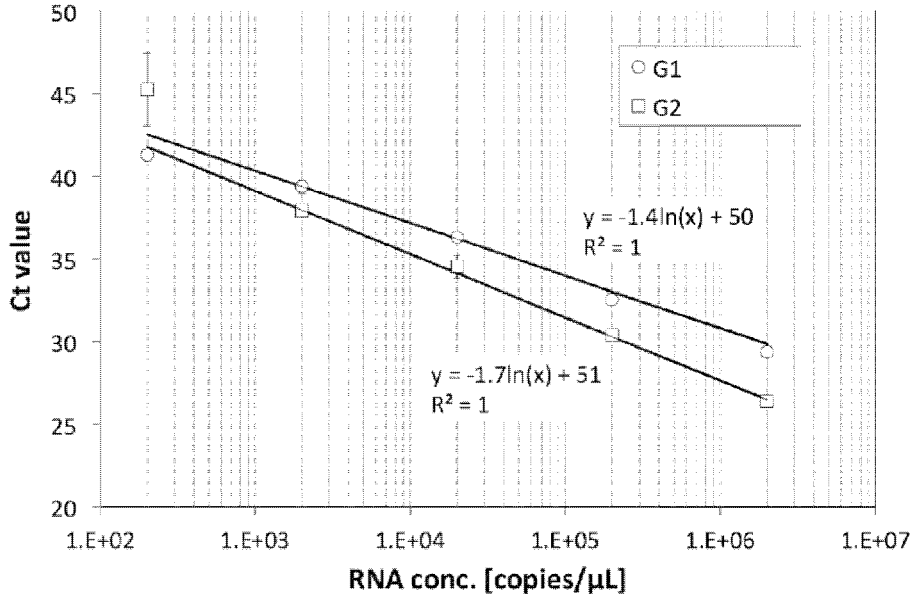
[図7]


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 #

[図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 #

[図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