

Figure 1

PRIOR ART

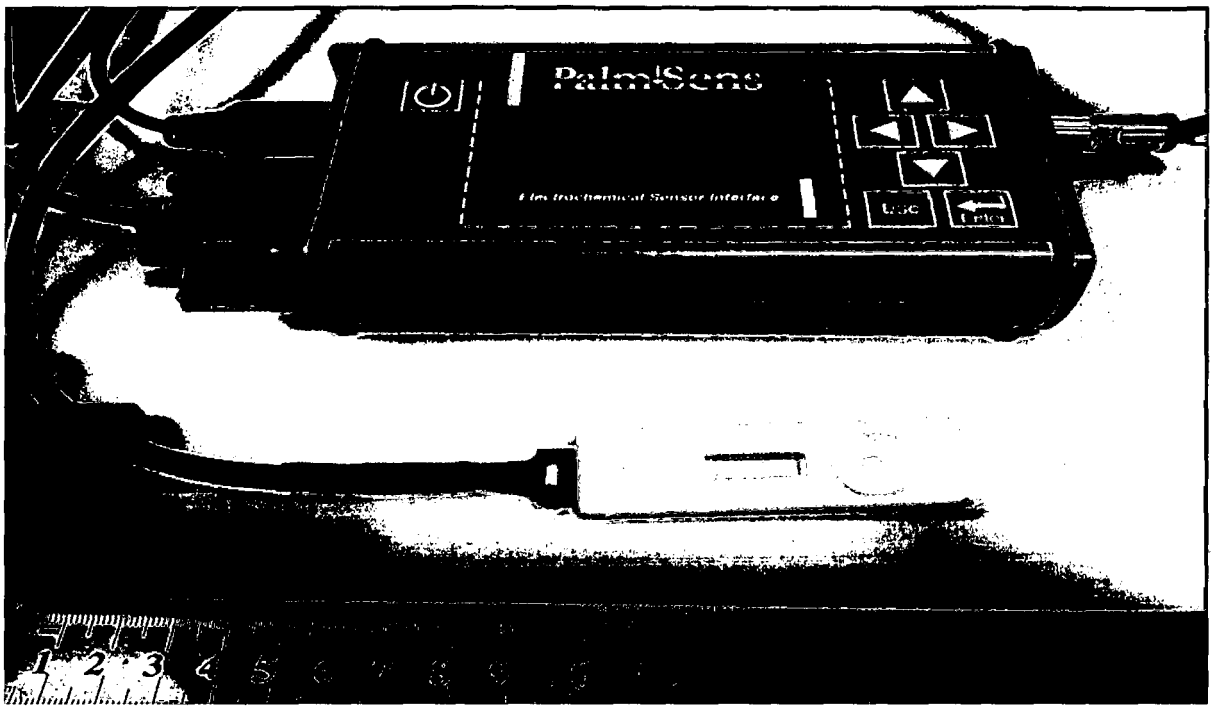


Figure 2A

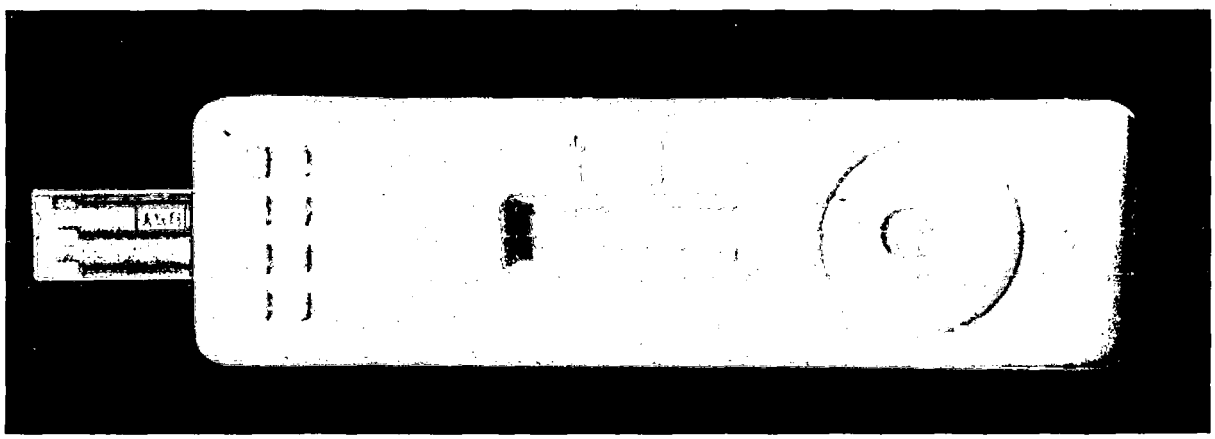


Figure 2B

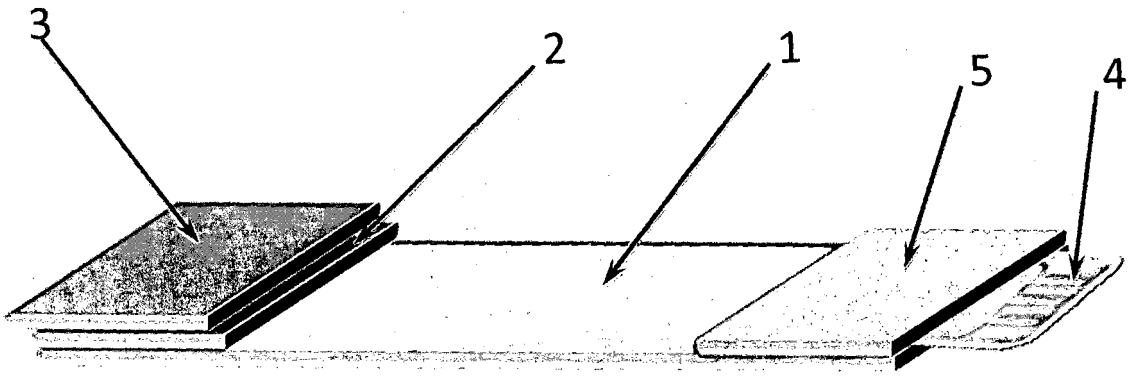


Figure 3

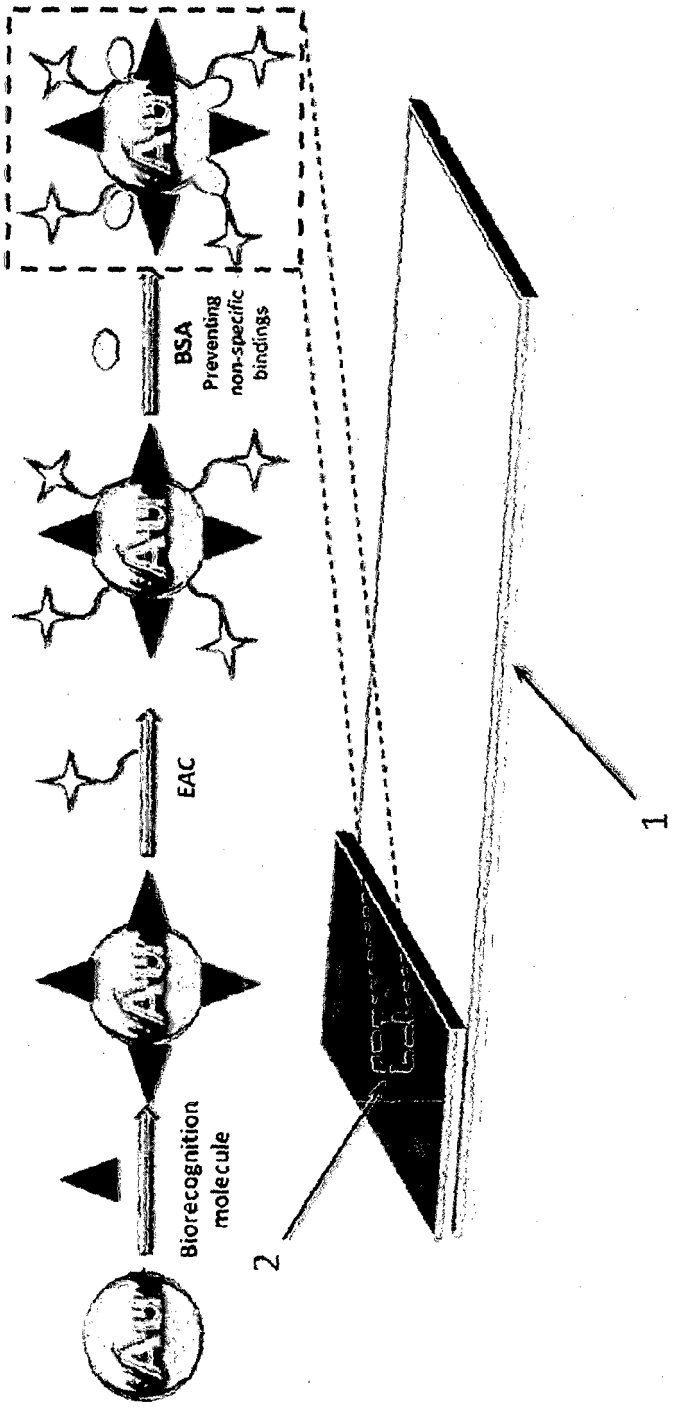

Biorecognition molecule
EAC
BSA
Preventing non-specific bindings
1
2

Figure 4

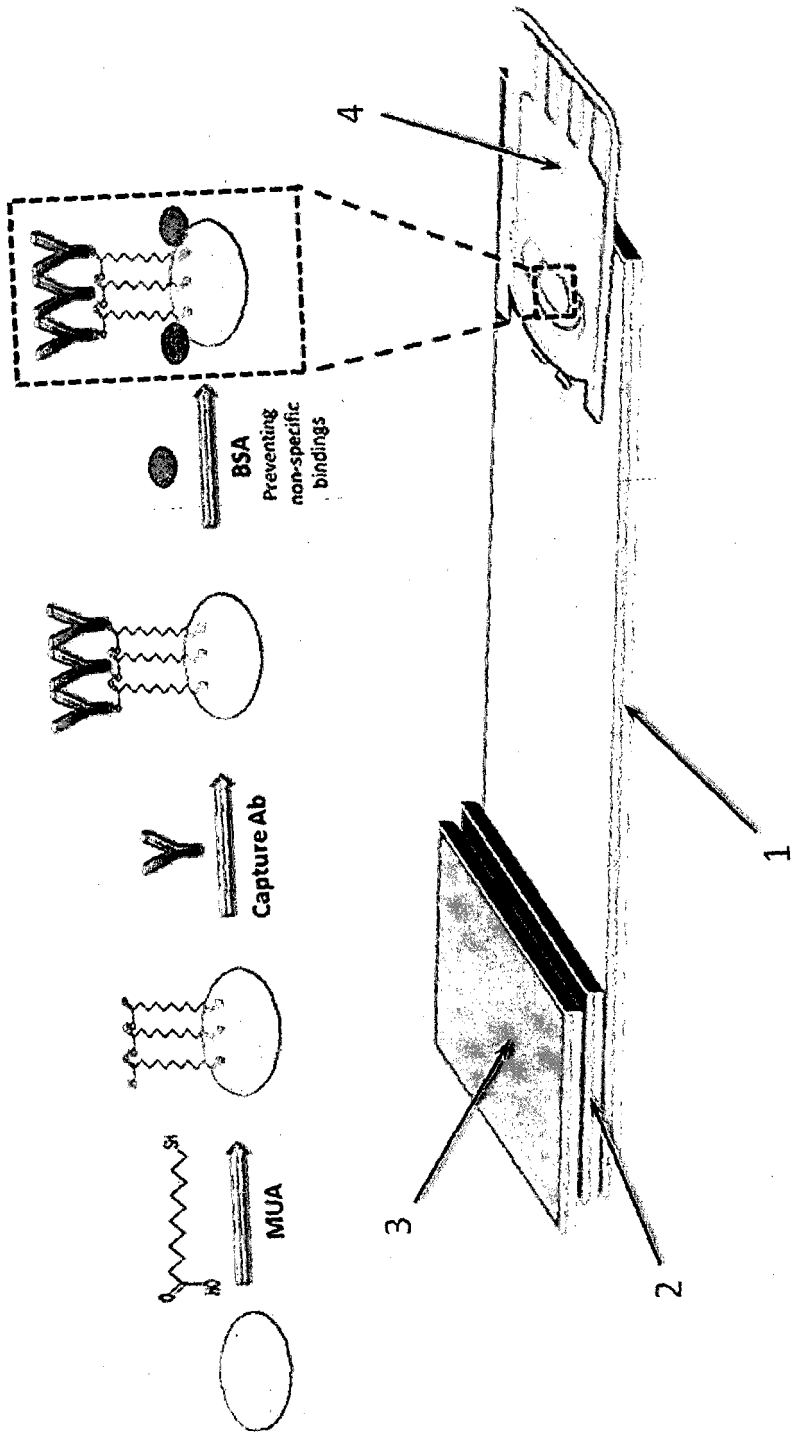


Figure 5

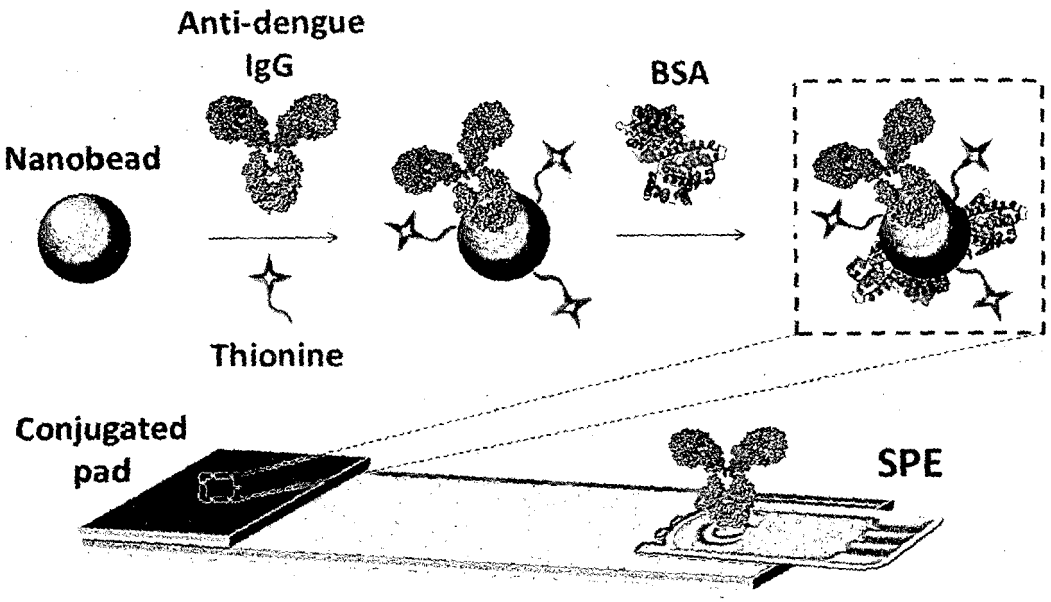


Figure 6A

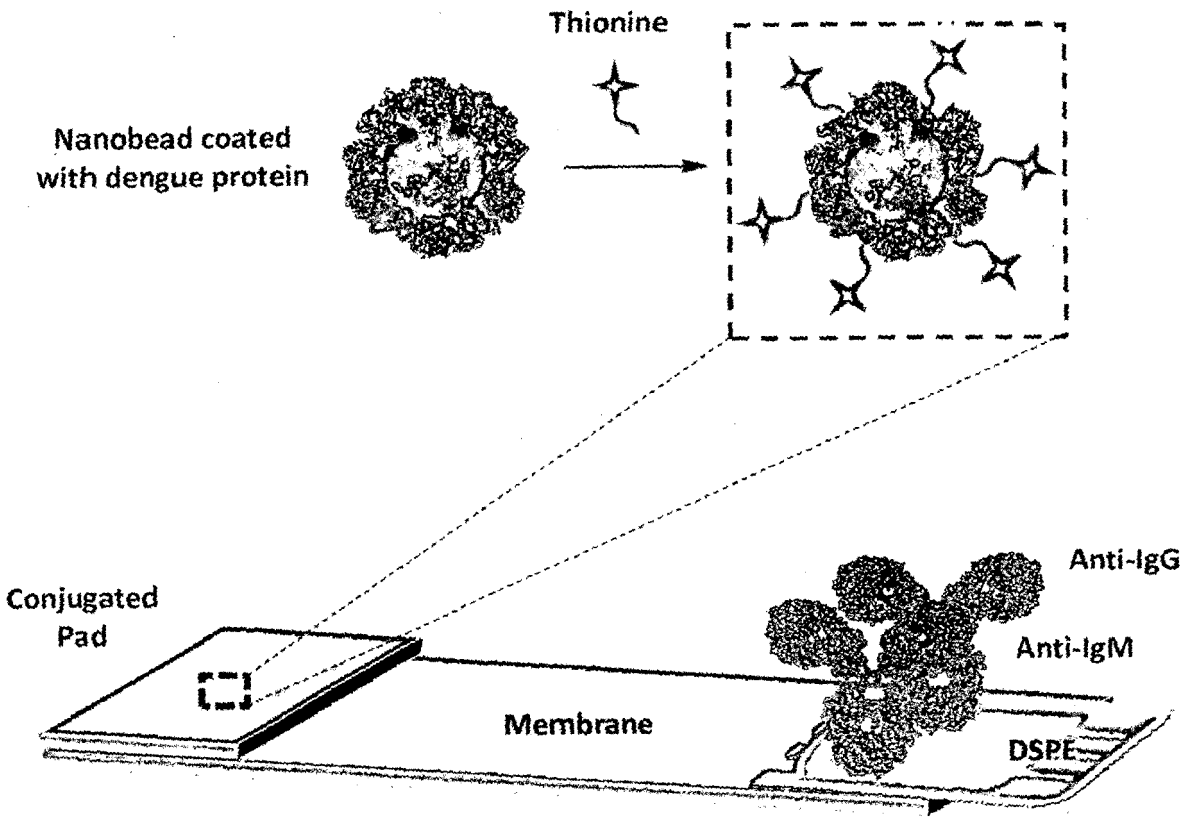

Thionine
Nanobead coated
with dengue protein
Anti-IgG
Anti-IgM
Conjugated
Pad
Membrane
DSPE

Figure 6B

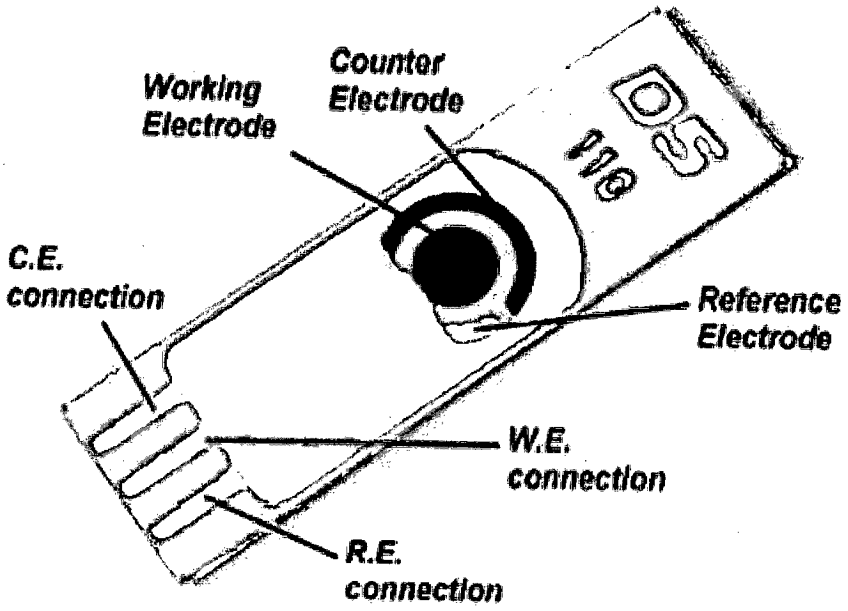


Figure 7A

PRIOR ART

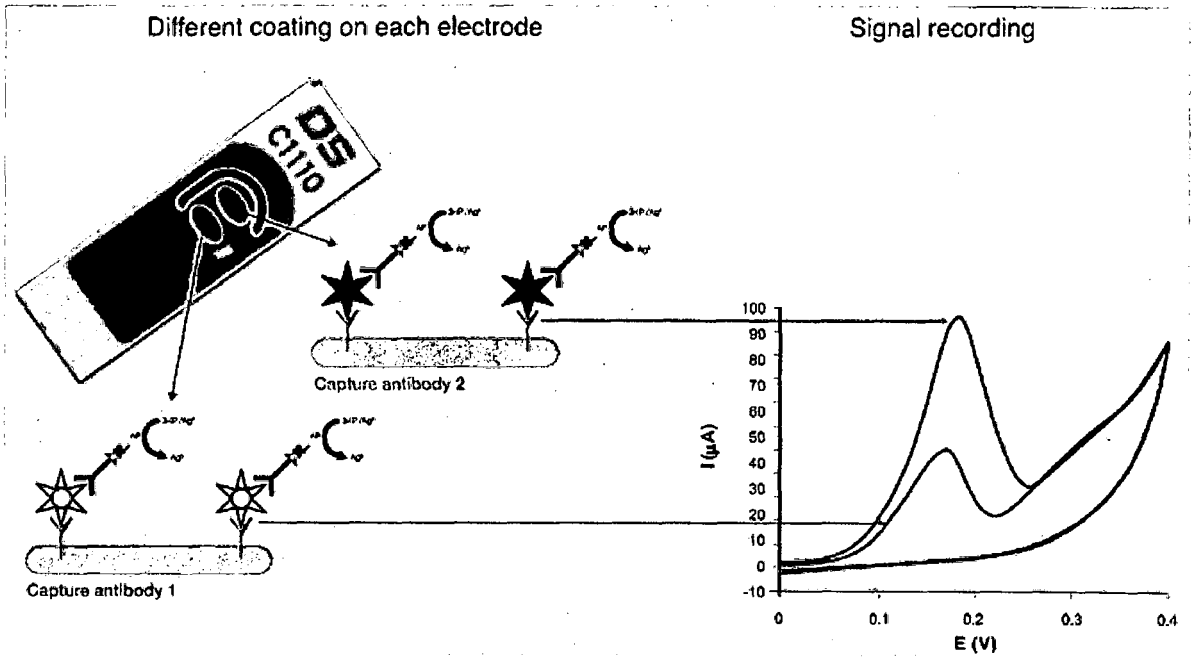


Figure 7B

PRIOR ART

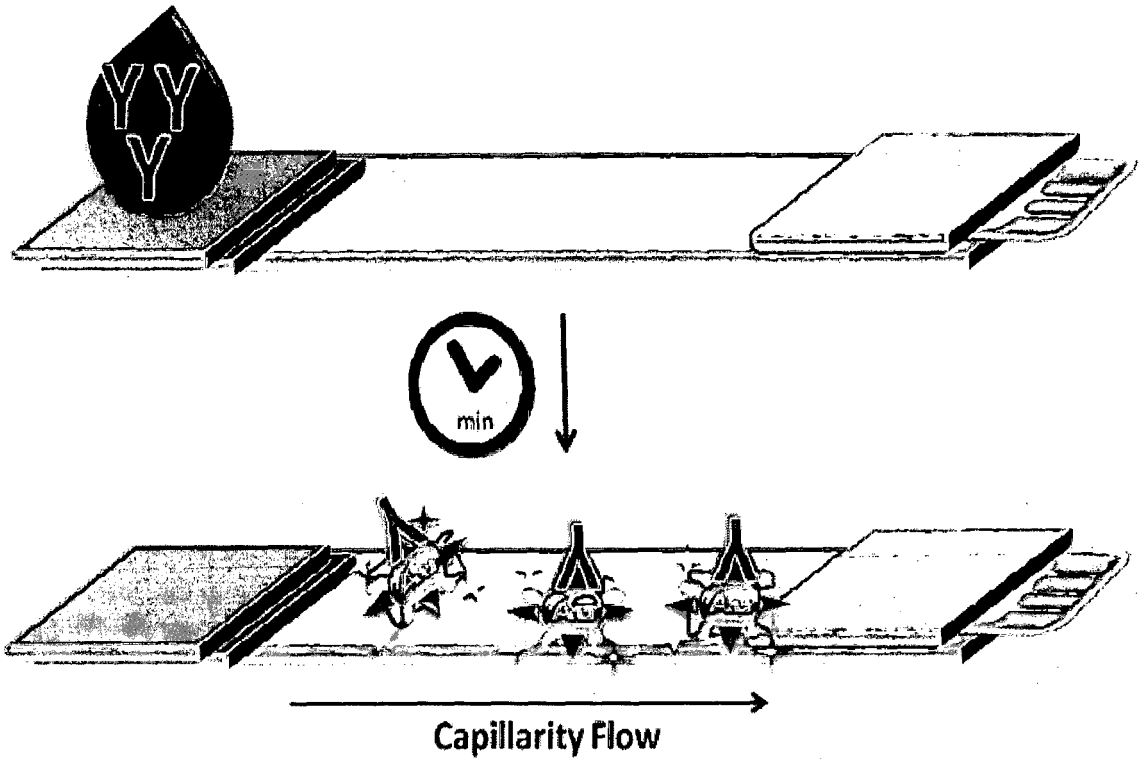


Figure 8

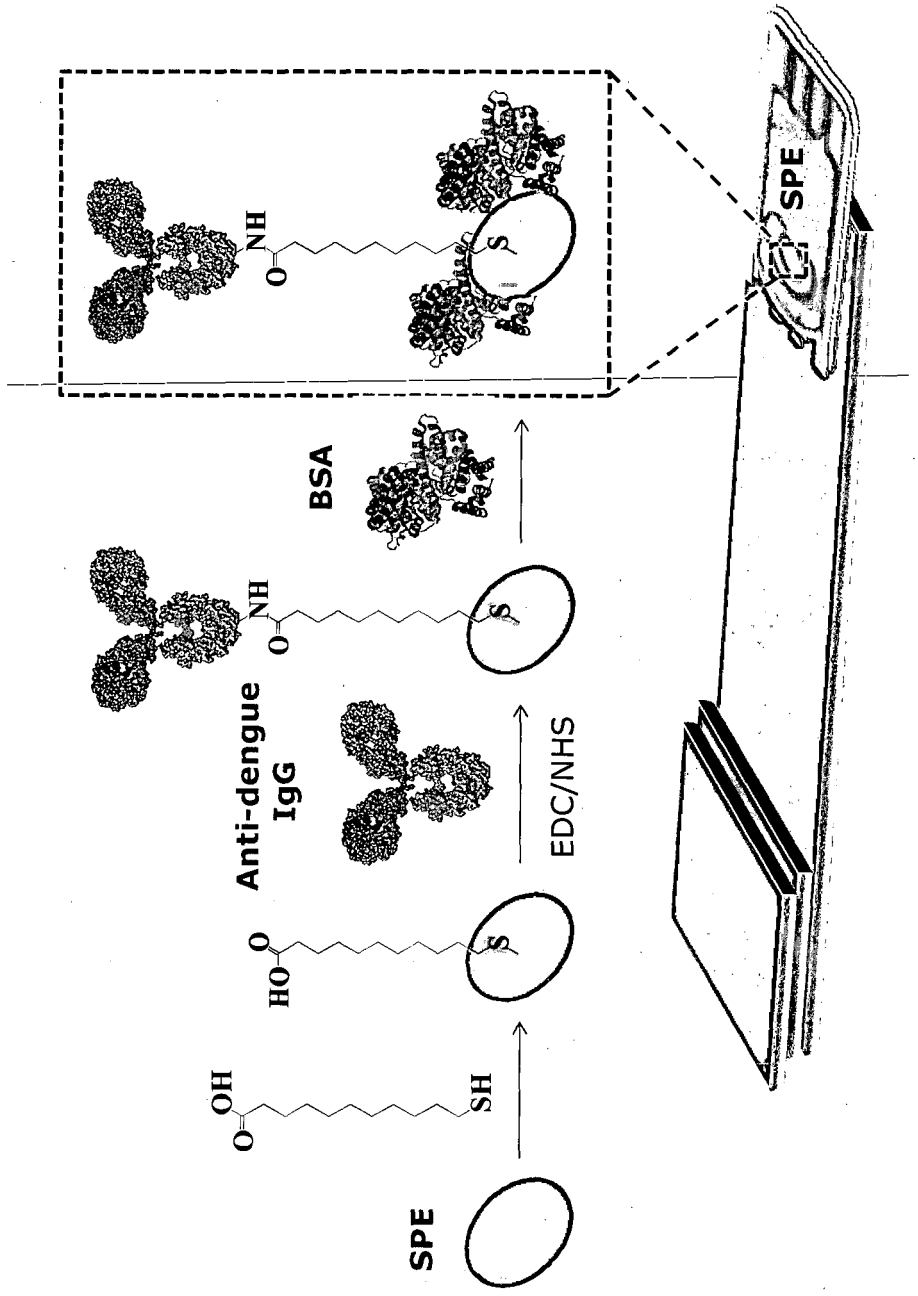


Figure 9

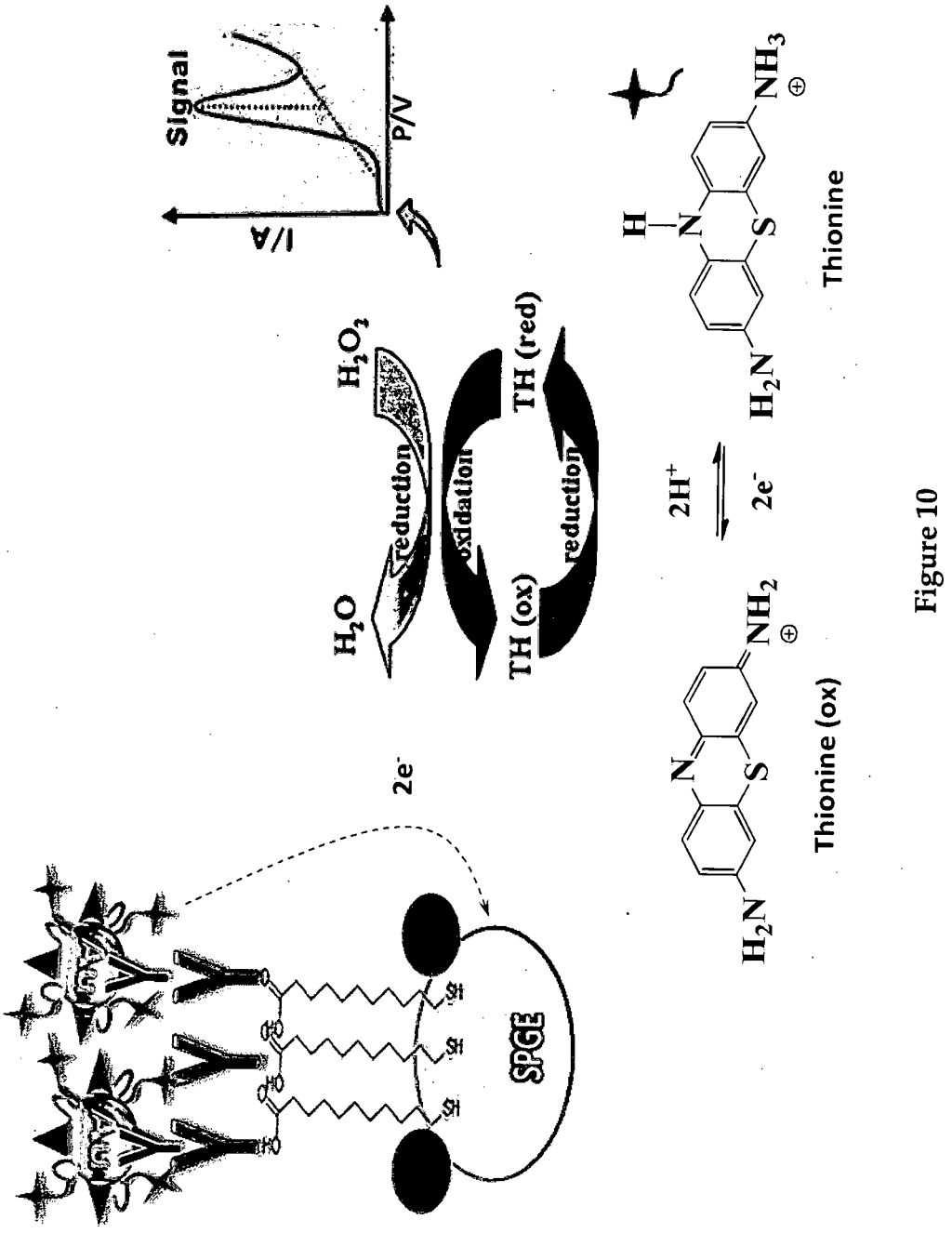

Signal
I/A
P/V
H_2O_2
H_2O
reduction
oxidation
reduction
TH (red)
TH (ox)
2e⁻
SPGE
SH
SH
SH
Thionine
Thionine (ox)
$2H^+$
$2e^-$
NH_3^+
NH_2^+
H_2N
H_2N
H
N
S
N
S

Figure 10

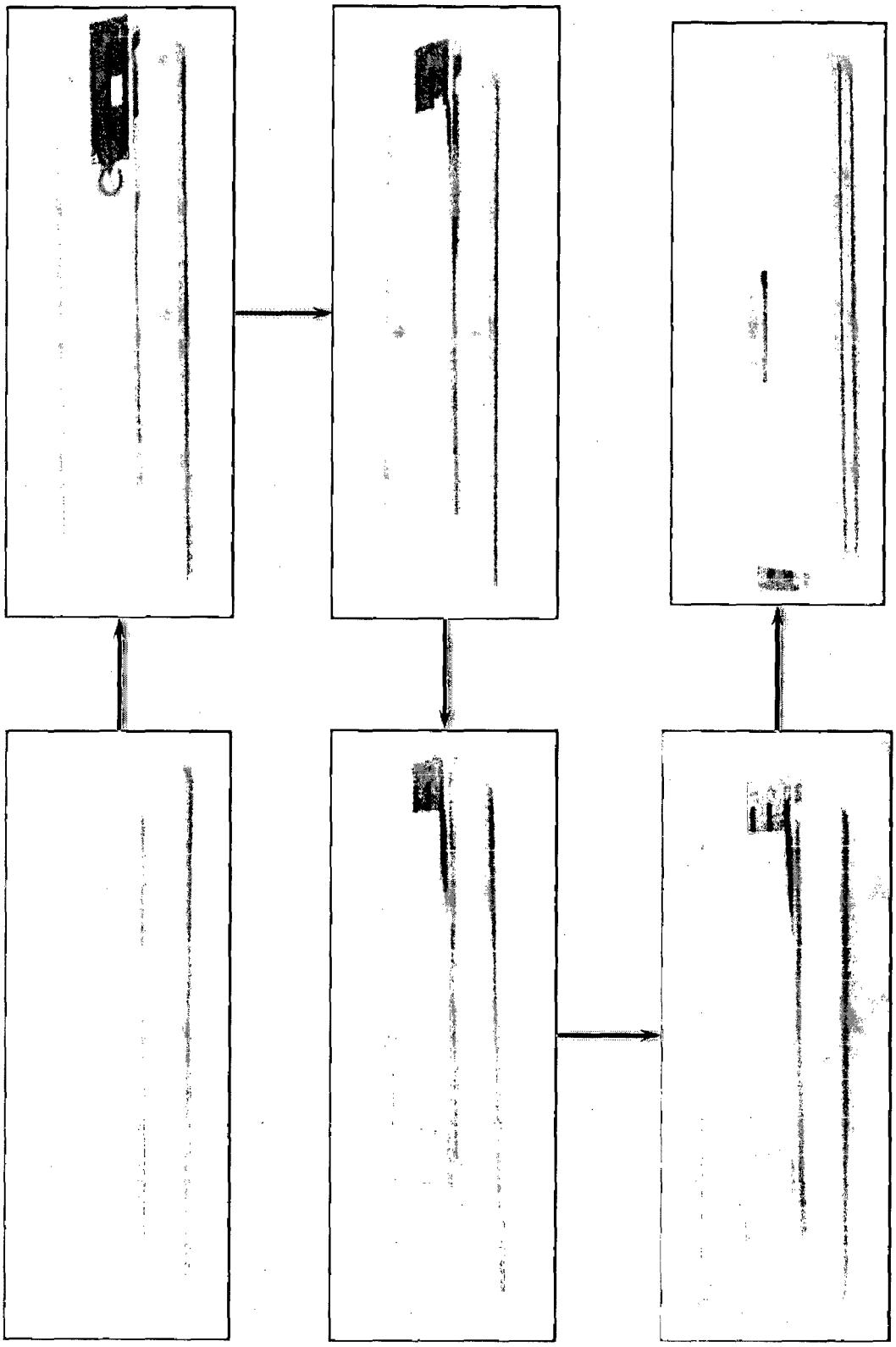


Figure 11

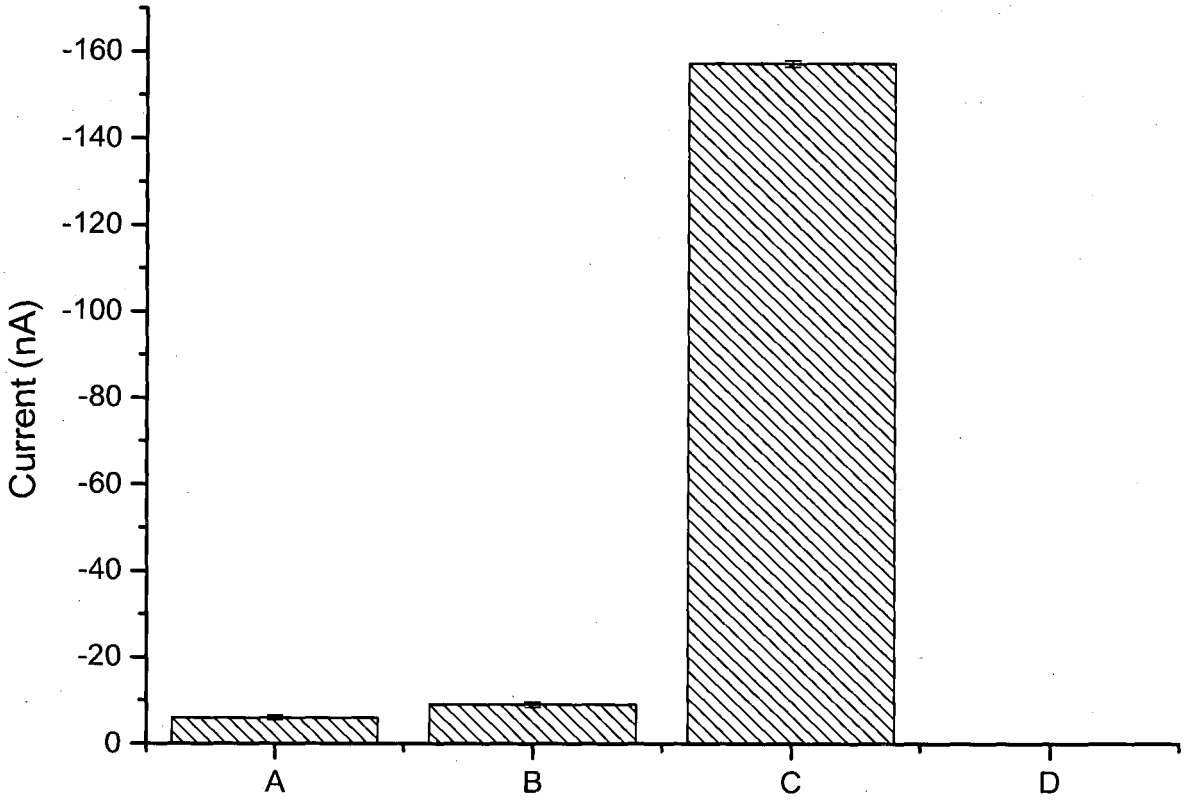


Figure 12A

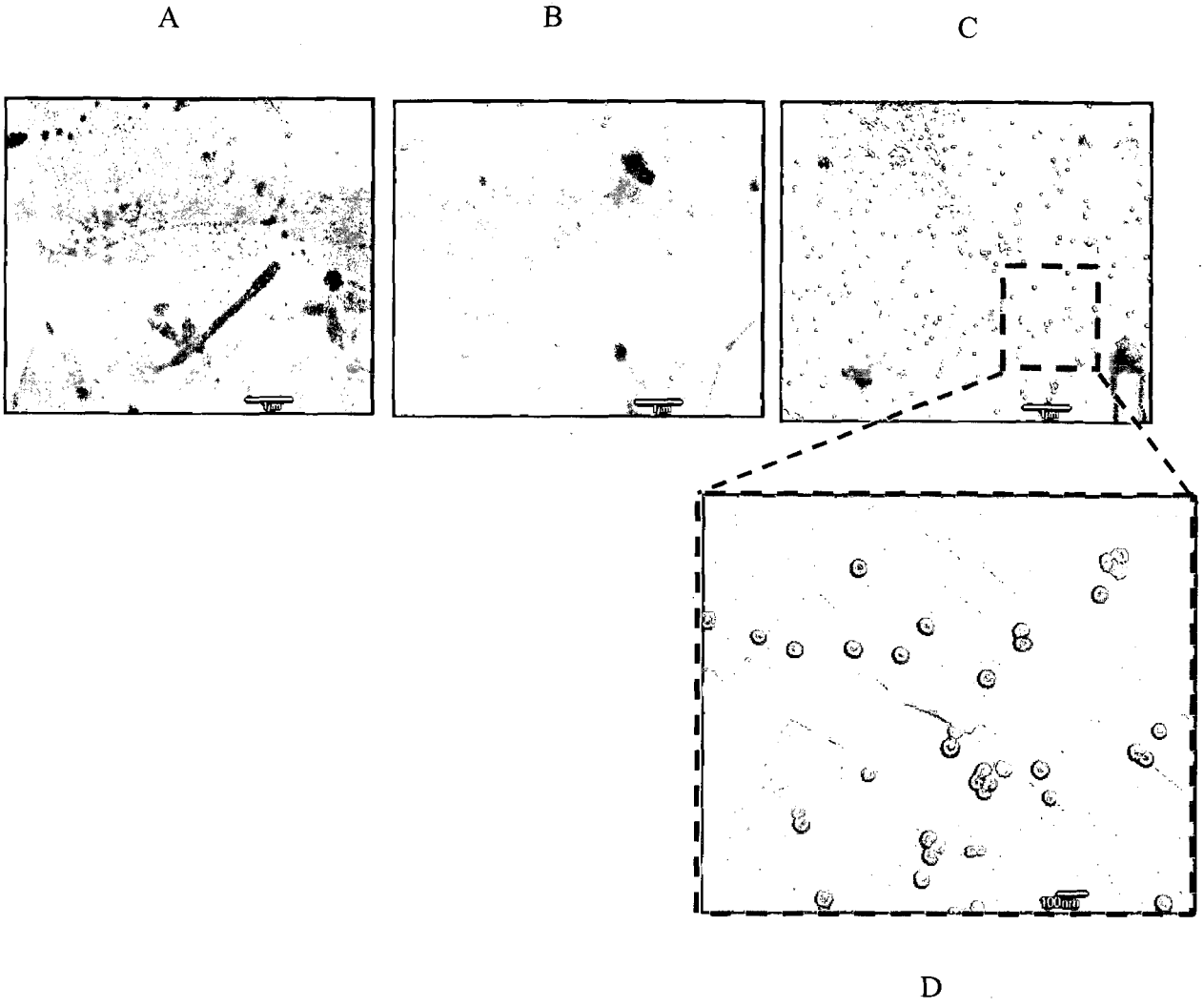


Figure 12B

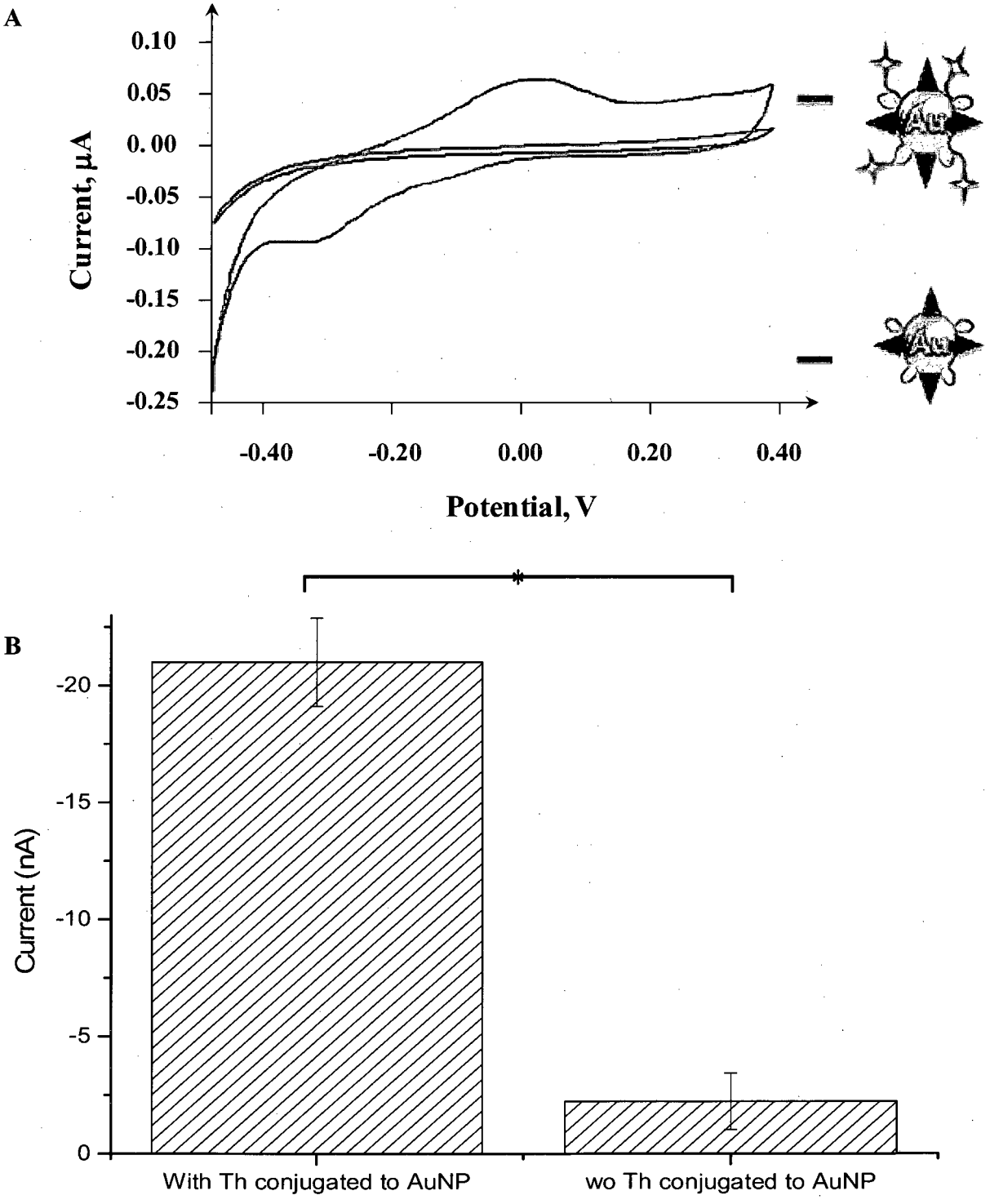

A
0.10
0.05
0. 00
-0.05
-0.10
-0.15
-0.20
-0.25
Current, µA
-0.40
-0.20
0.00
0.20
0.40
Potential, V
B
-20
-15
-10
-5
0
Current (nA)
With Th conjugated to AuNP
wo Th conjugated to AuNP

Figure 13

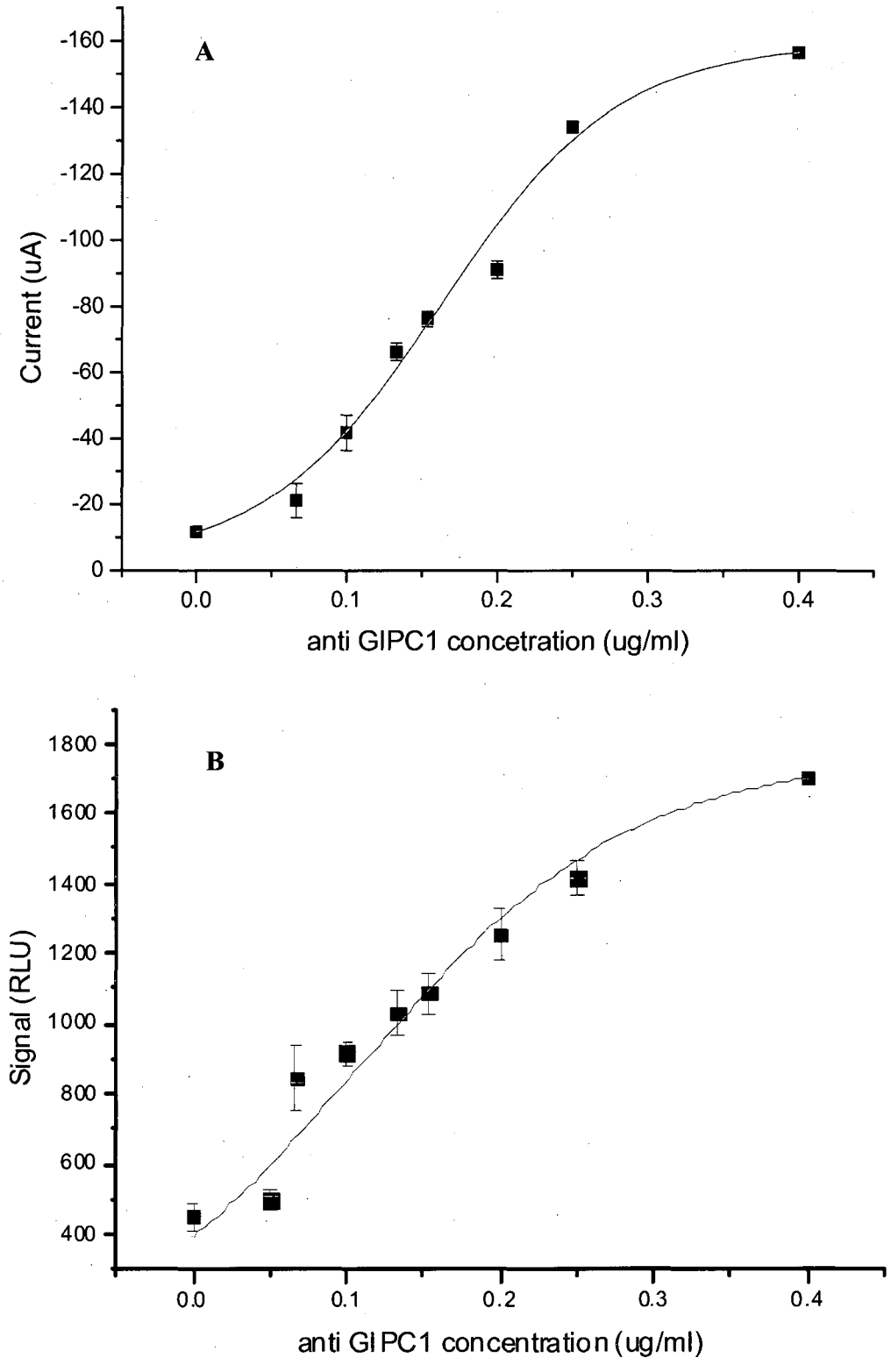
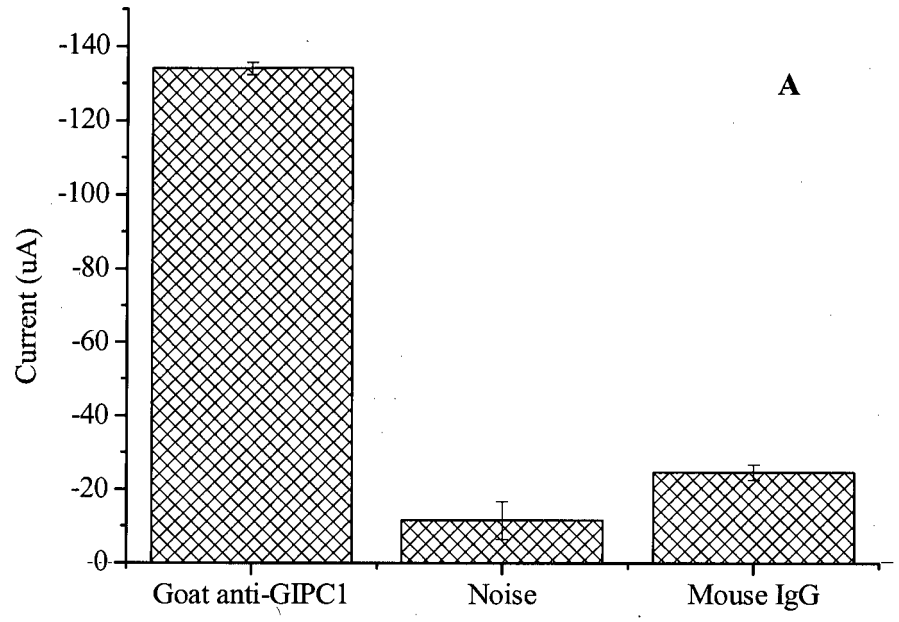
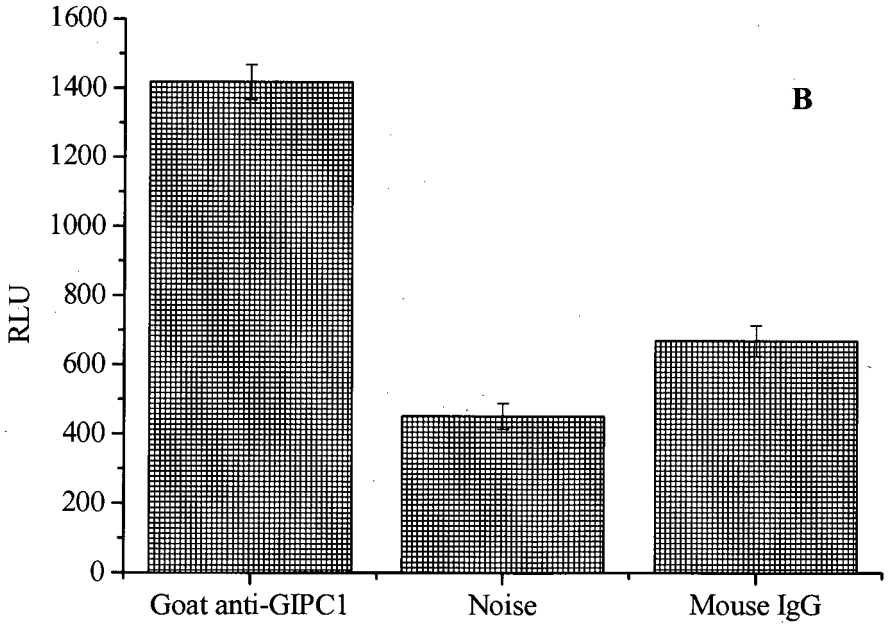

A
Current (uA)
-160
-140
-120
-100
-80
-60
-40
-20
0
0.0
0.1
0.2
0.3
0.4
anti GIPC1 concetration (ug/ml)
B
Signal (RLU)
1800
1600
1400
1200
1000
800
600
400
0.0
0.1
0.2
0.3
0.4
anti GIPC1 concentration (ug/ml)

Figure 14



ELFB



ELISA

Figure 15