


Figure 1

PRIOR ART

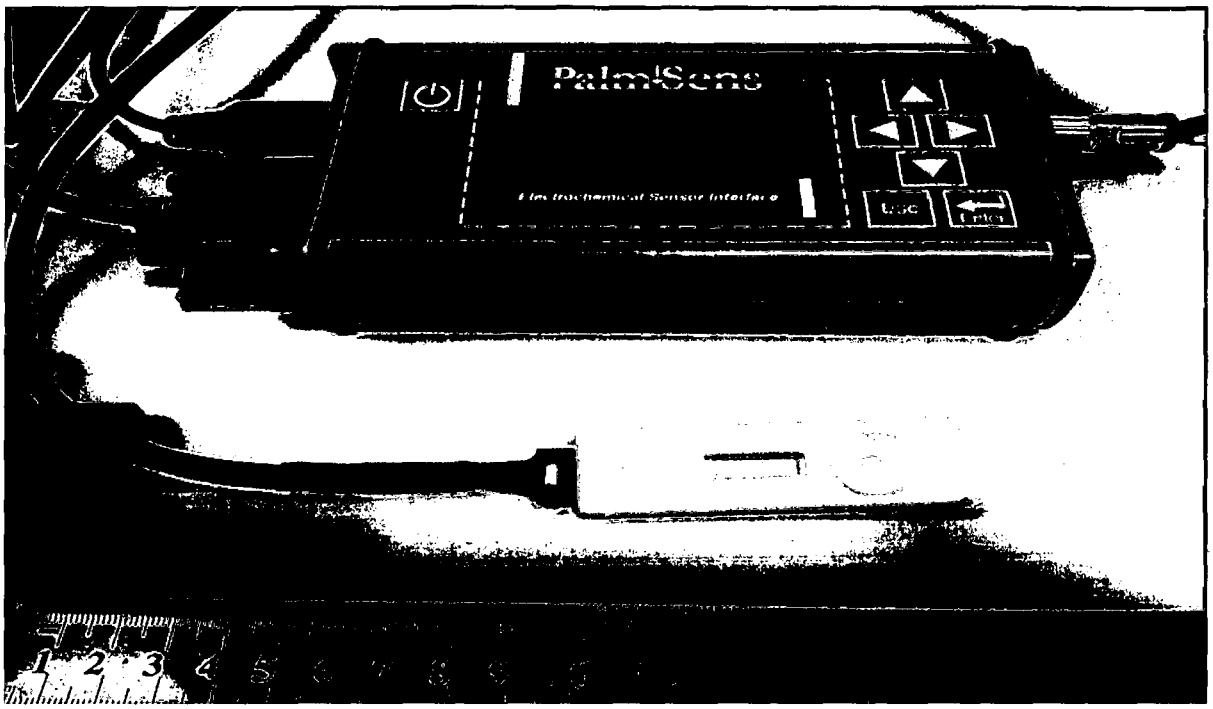



Figure 2A

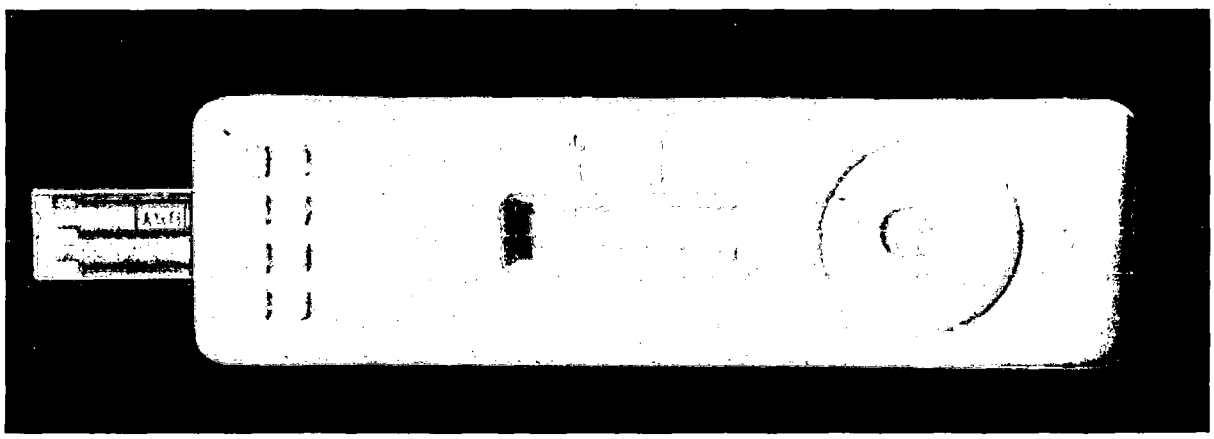


Figure 2B

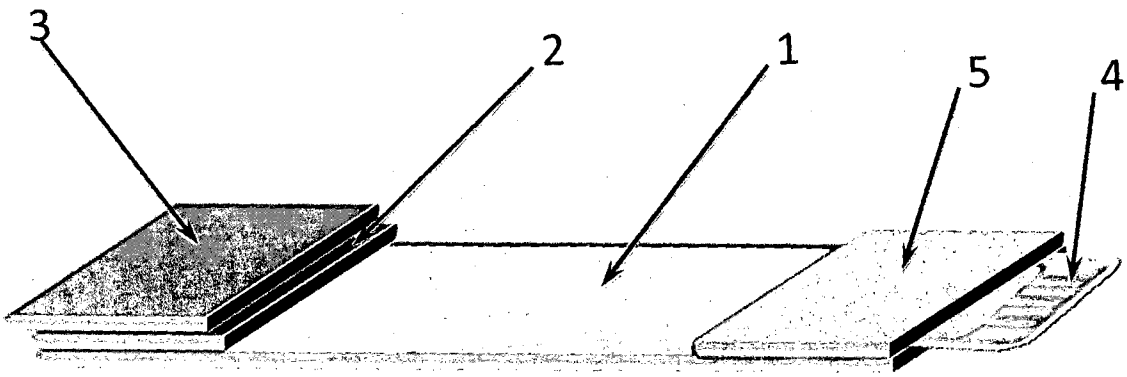



Figure 3

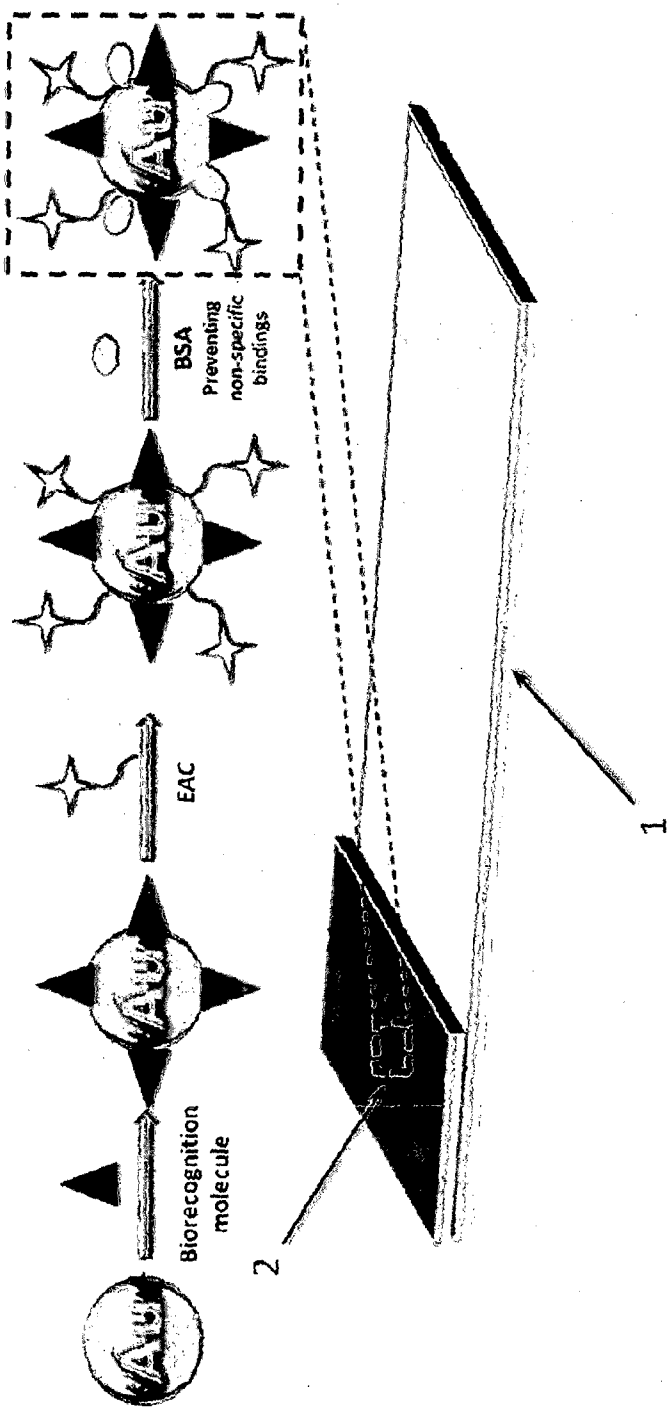

Biorecognition molecule
EAC
BSA
Preventing non-specific bindings
1
2

Figure 4

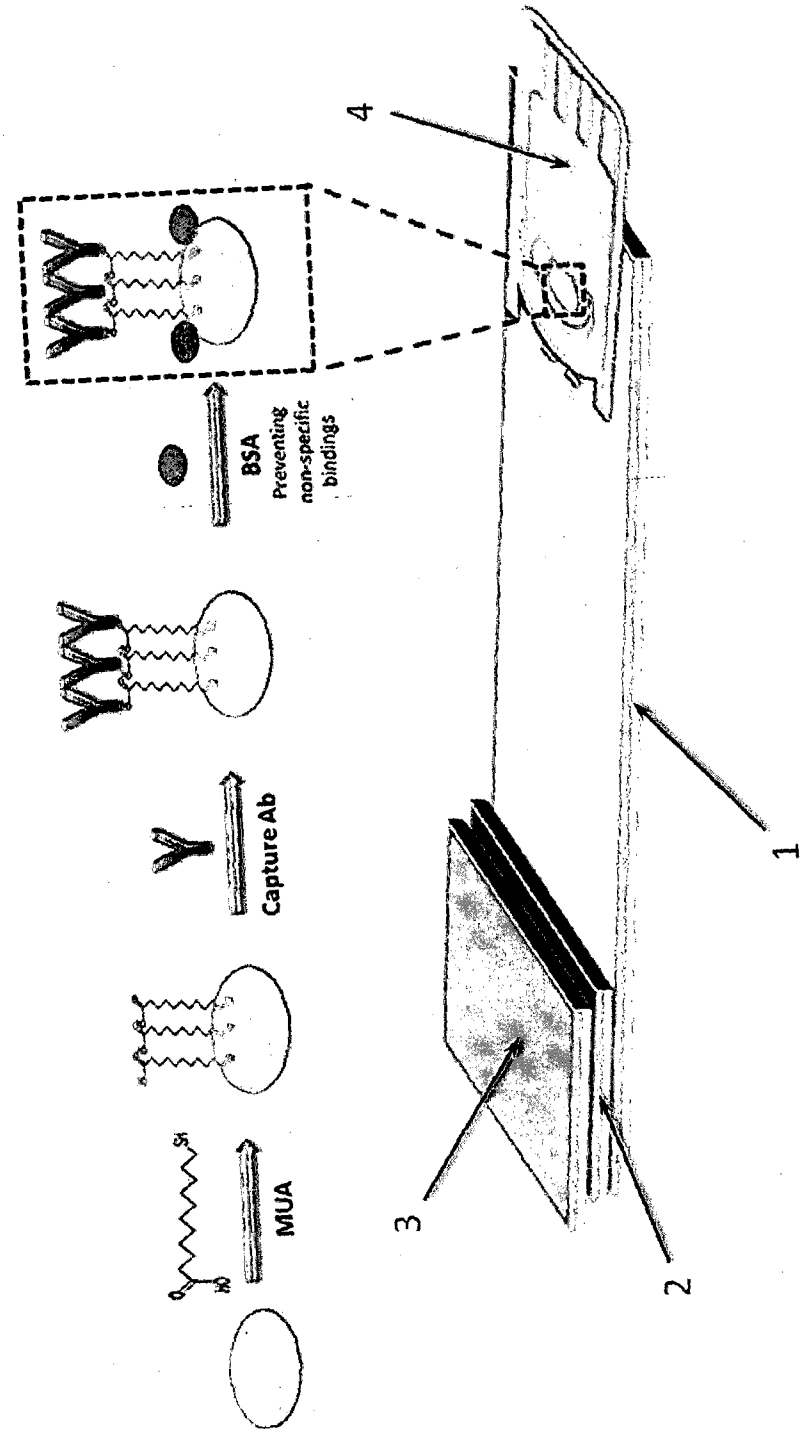



Figure 5

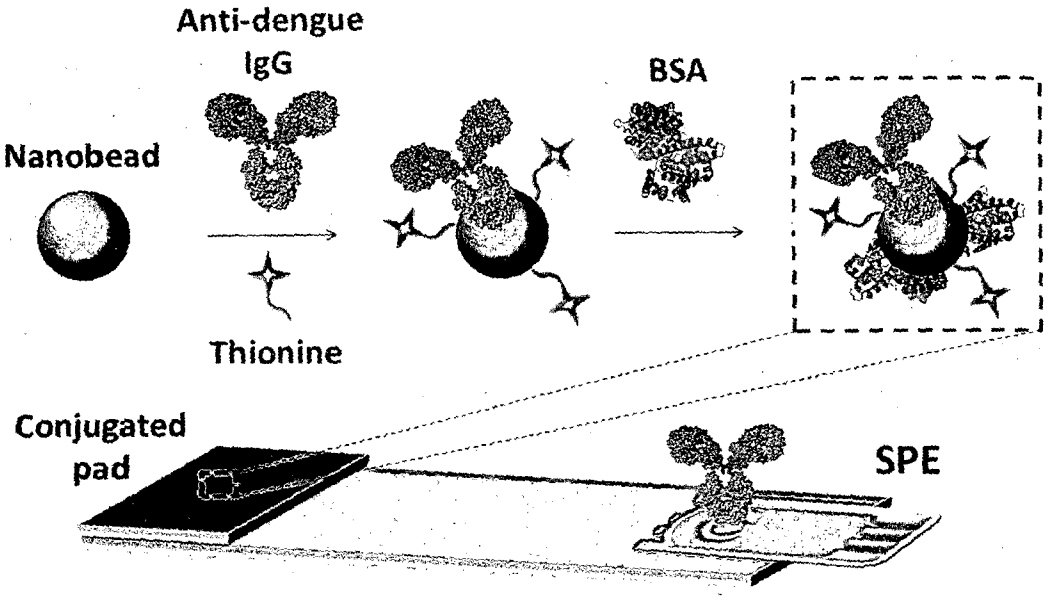



Figure 6A

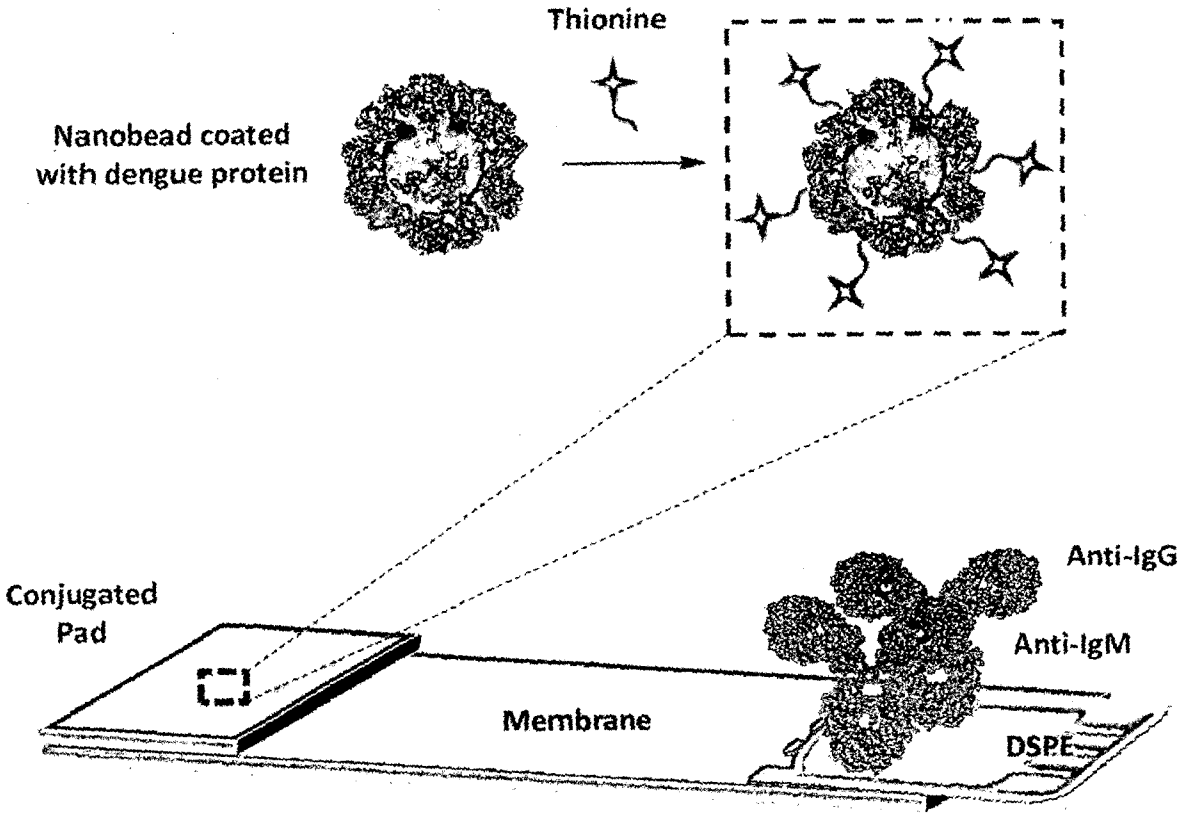

Thionine
Nanobead coated
with dengue protein
Anti-IgG
Conjugated
Pad
Anti-IgM
Membrane
DSPE

Figure 6B

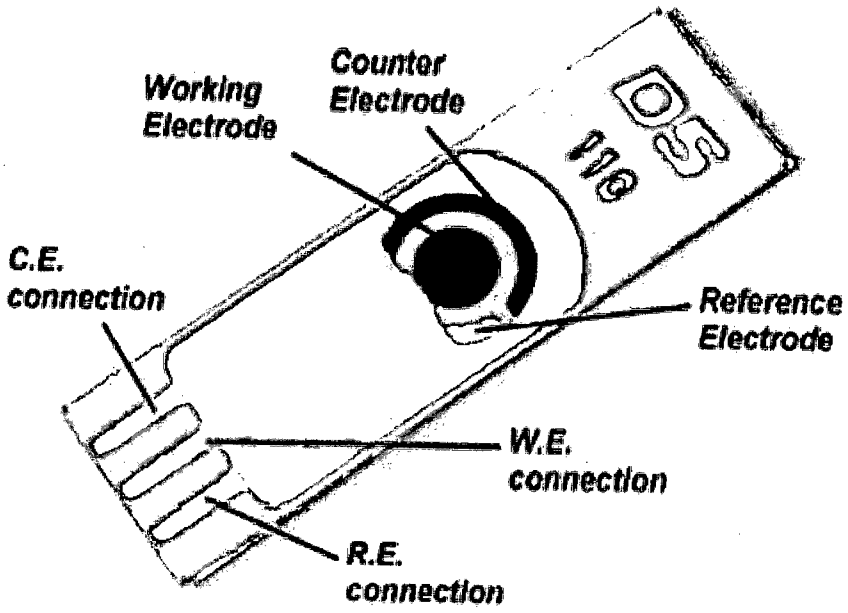



Figure 7A

PRIOR ART

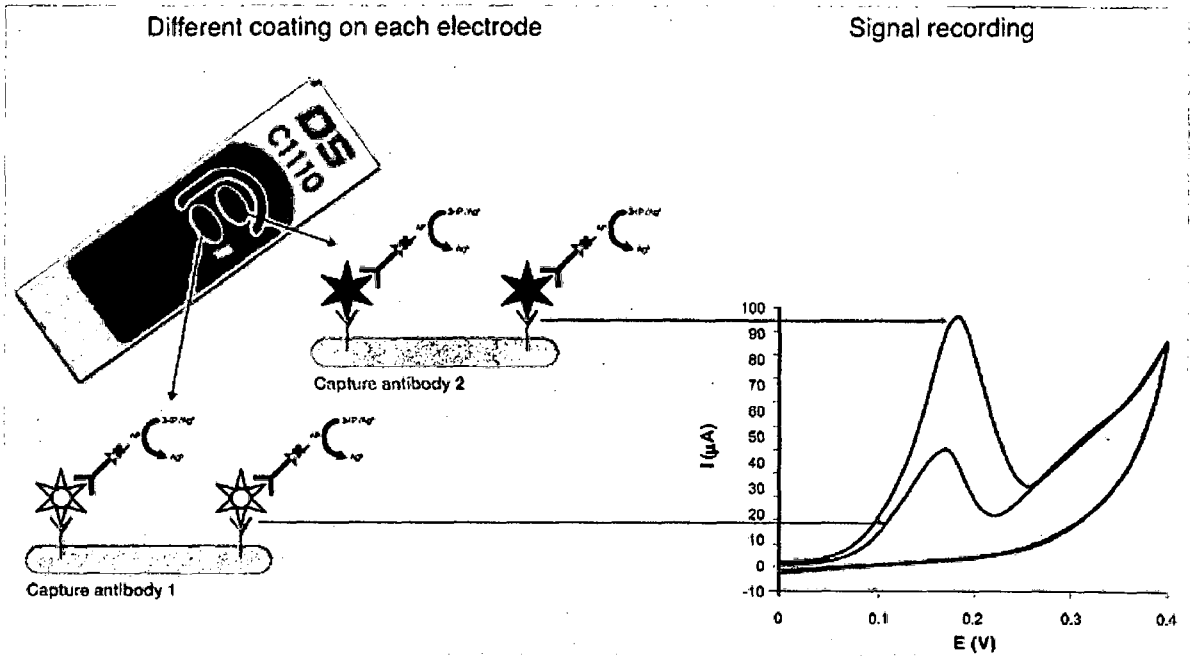



Figure 7B

PRIOR ART

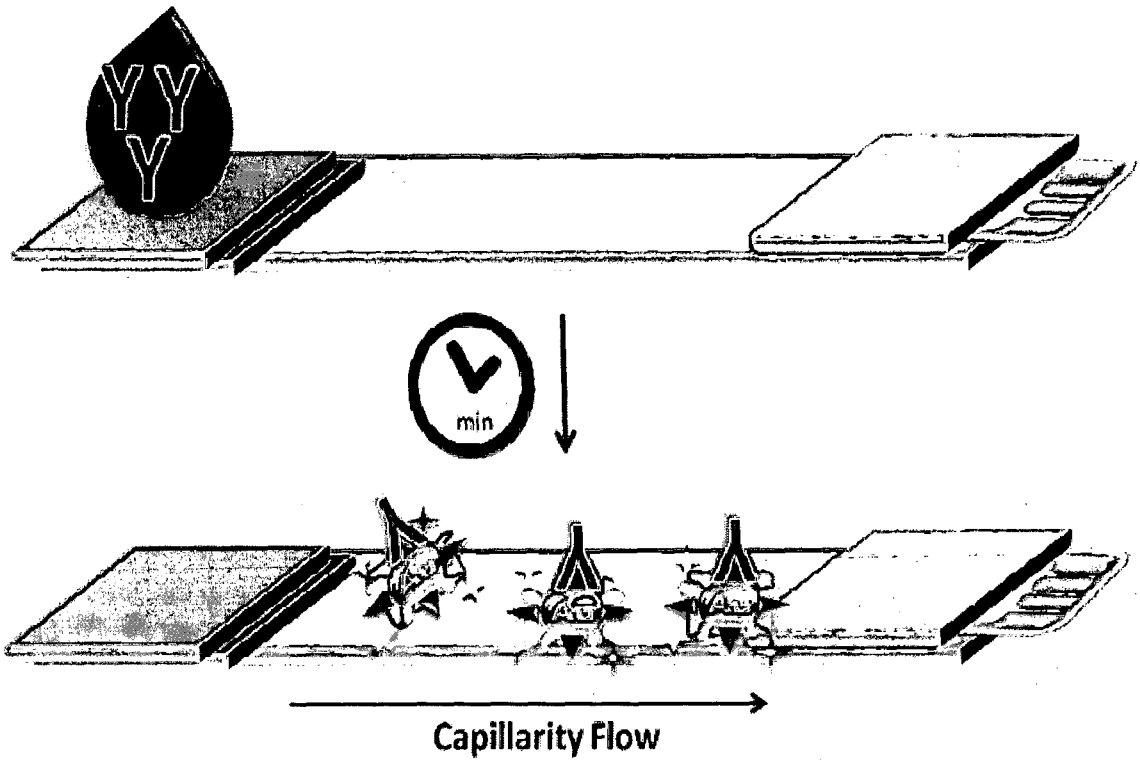



Figure 8

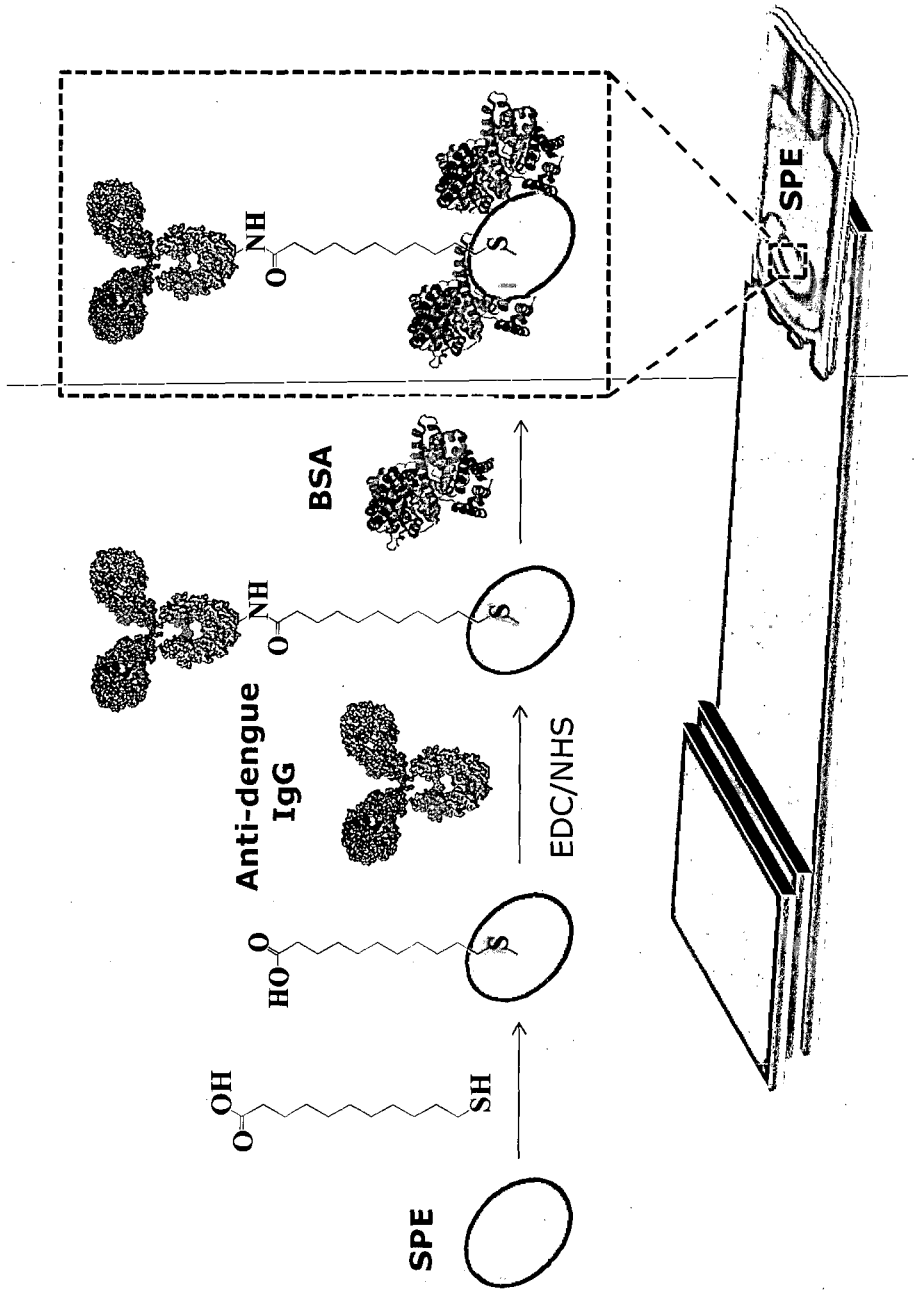



Figure 9

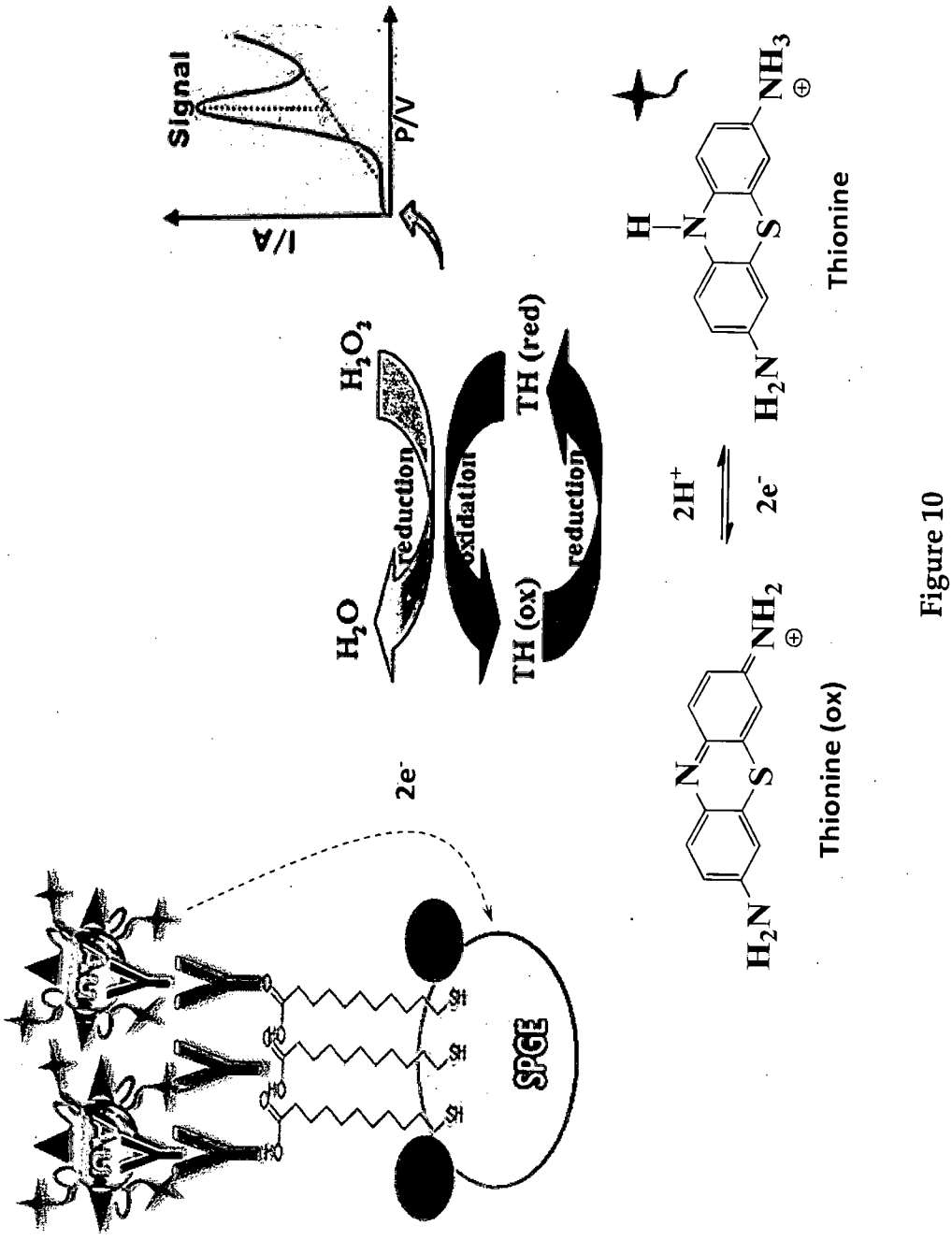

Signal
I/A
P/V
$H_2O_2$
$H_2O$
reduction
oxidation
reduction
TH (red)
TH (ox)
2e⁻
SPGE
Thionine
Thionine (ox)
$2H^+$
$2e^-$

Figure 10

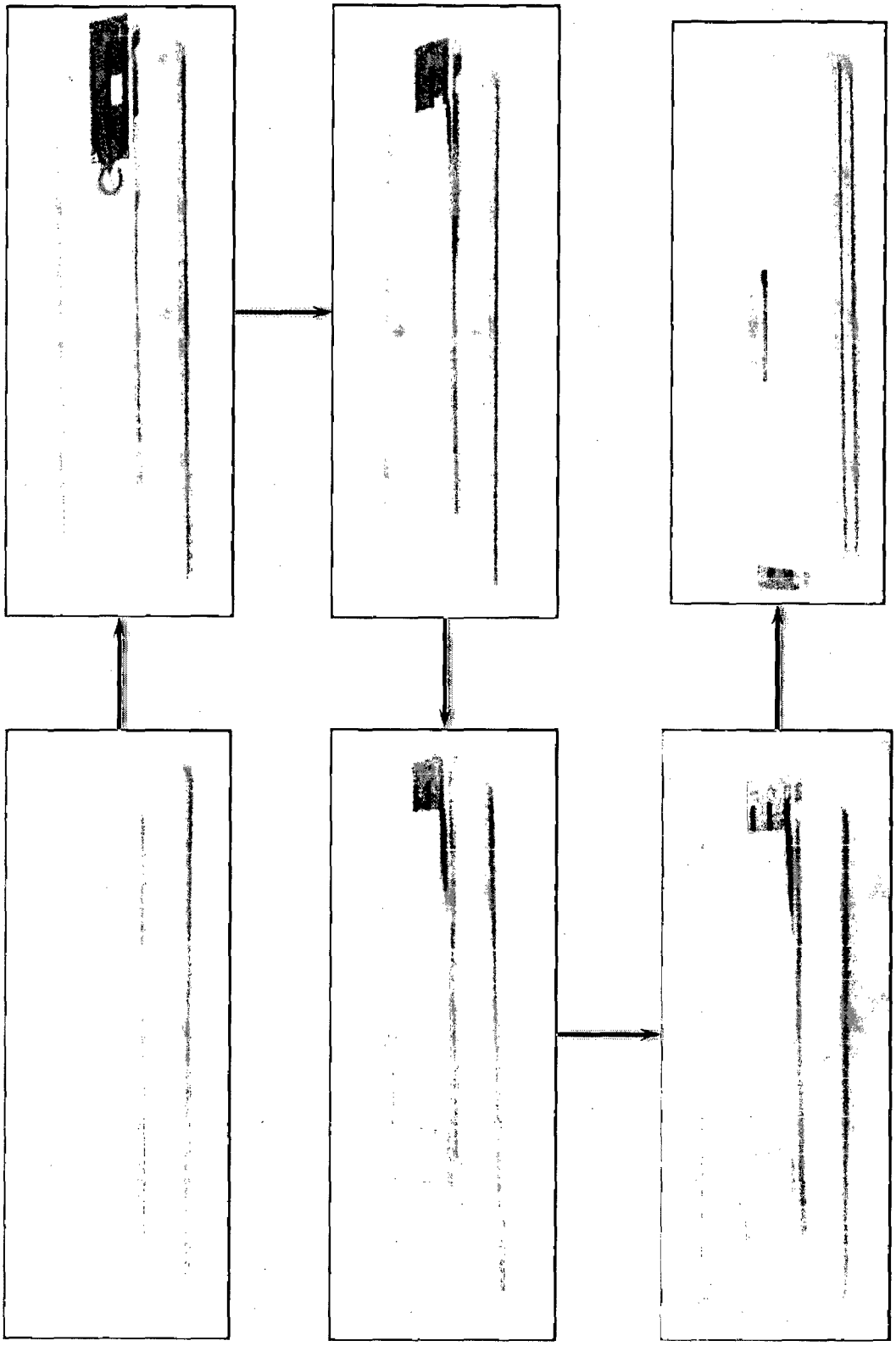


Figure 11

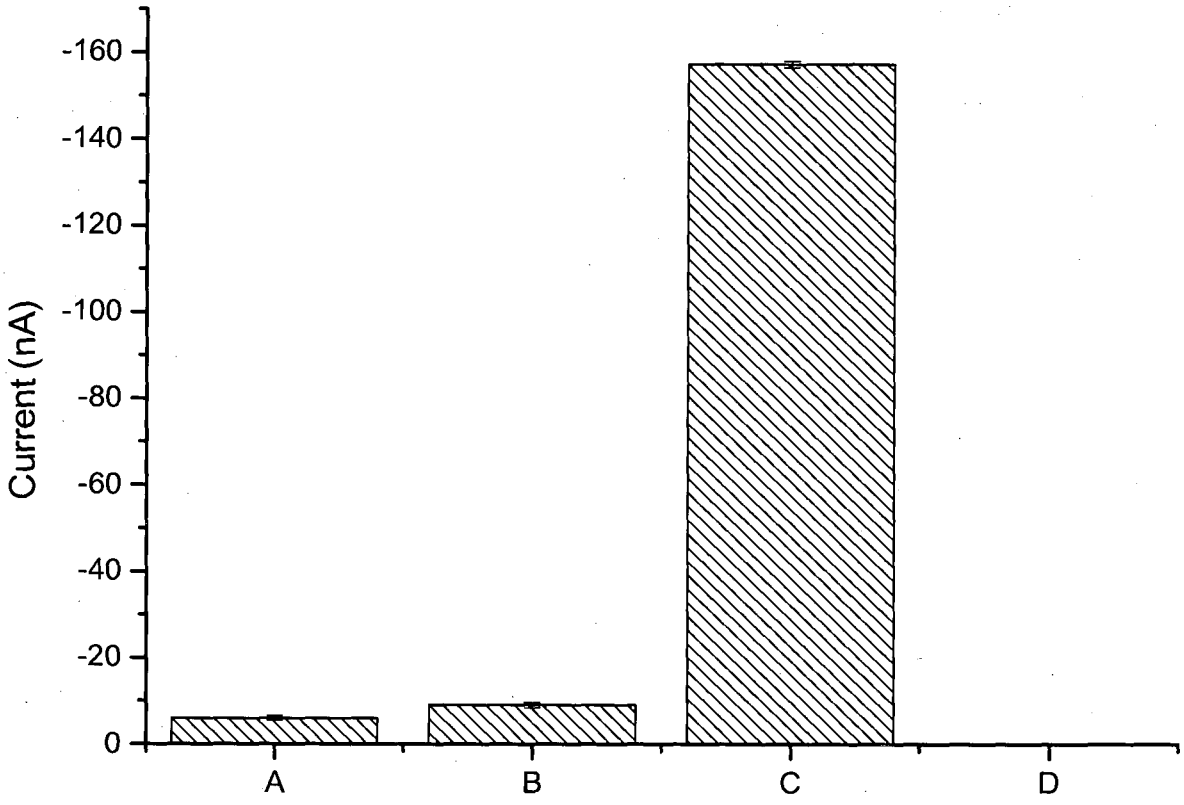



Figure 12A

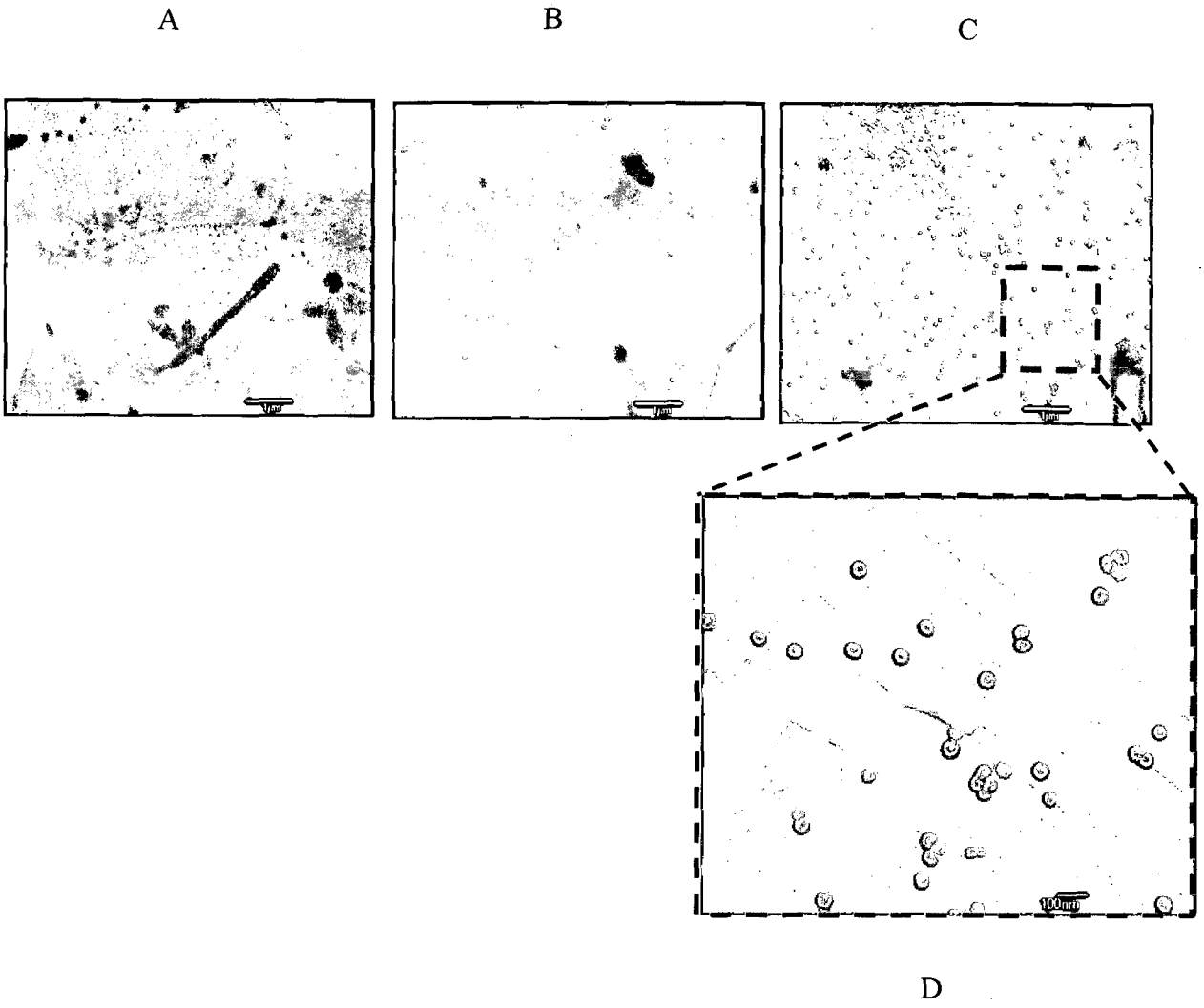



Figure 12B

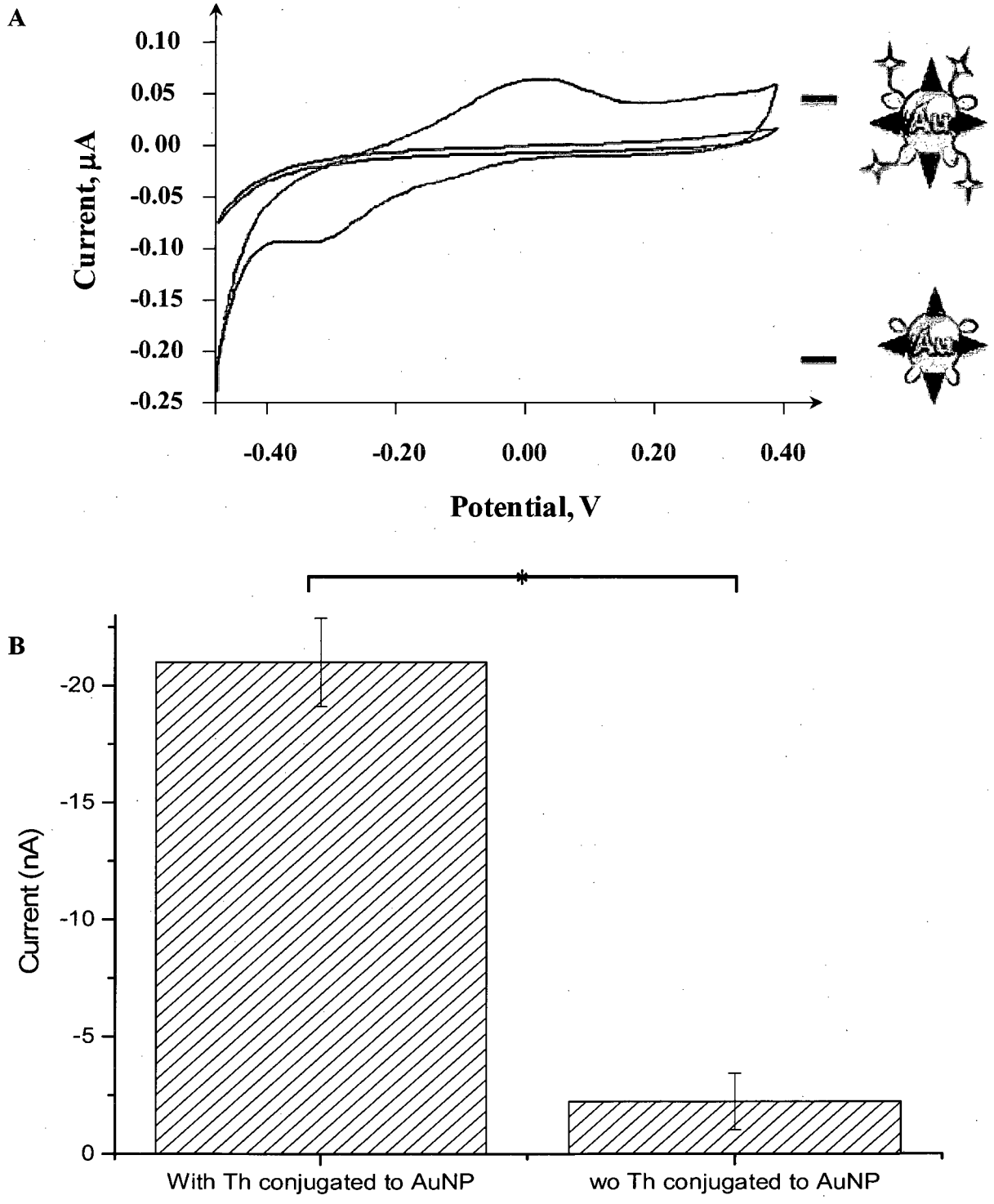

A
0.10
0.05
0. 00
-0.05
-0.10
-0.15
-0.20
-0.25
Current, µA
-0.40
-0.20
0.00
0.20
0.40
Potential, V
B
-20
-15
-10
-5
0
Current (nA)
With Th conjugated to AuNP
wo Th conjugated to AuNP

Figure 13

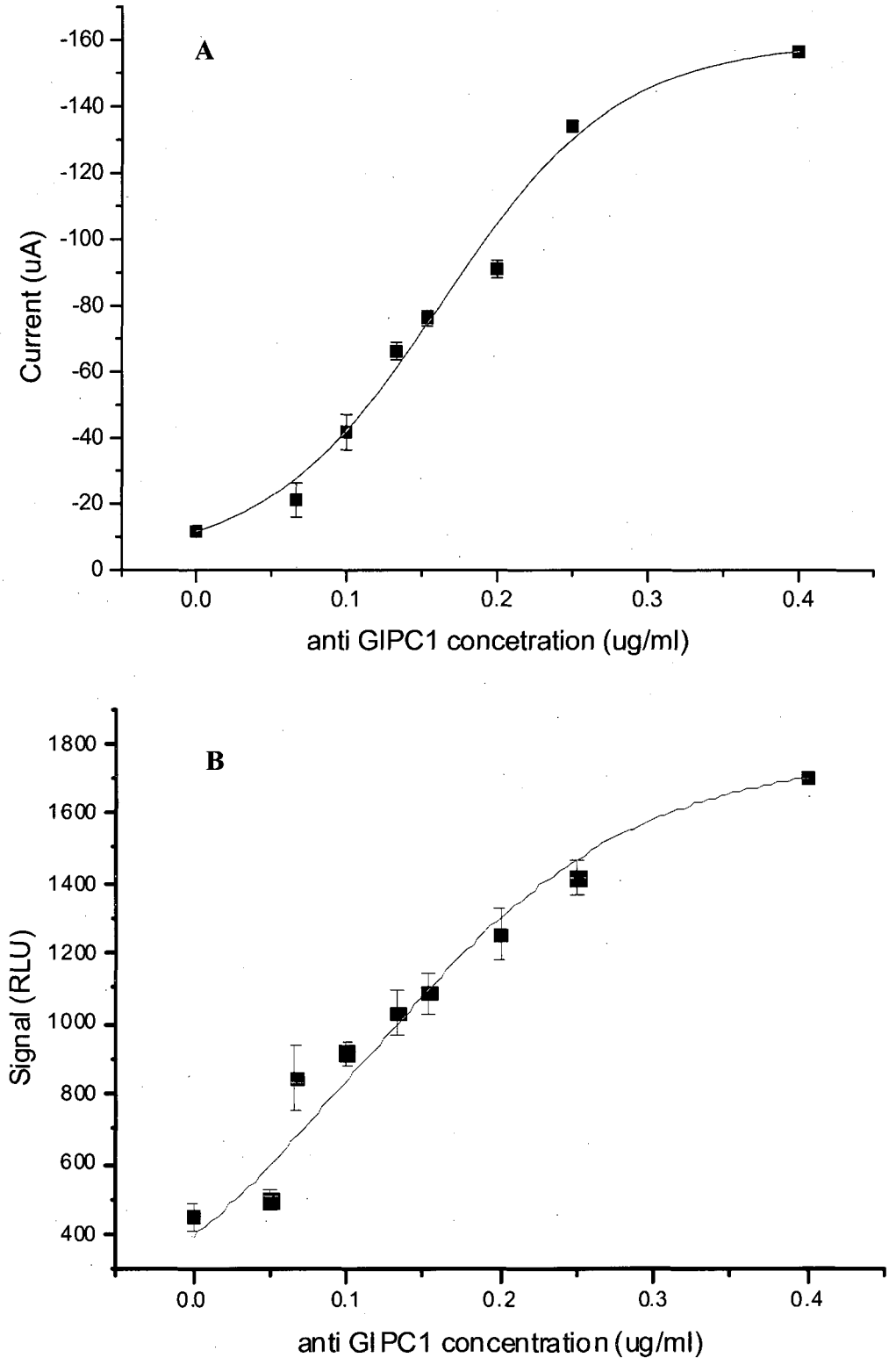
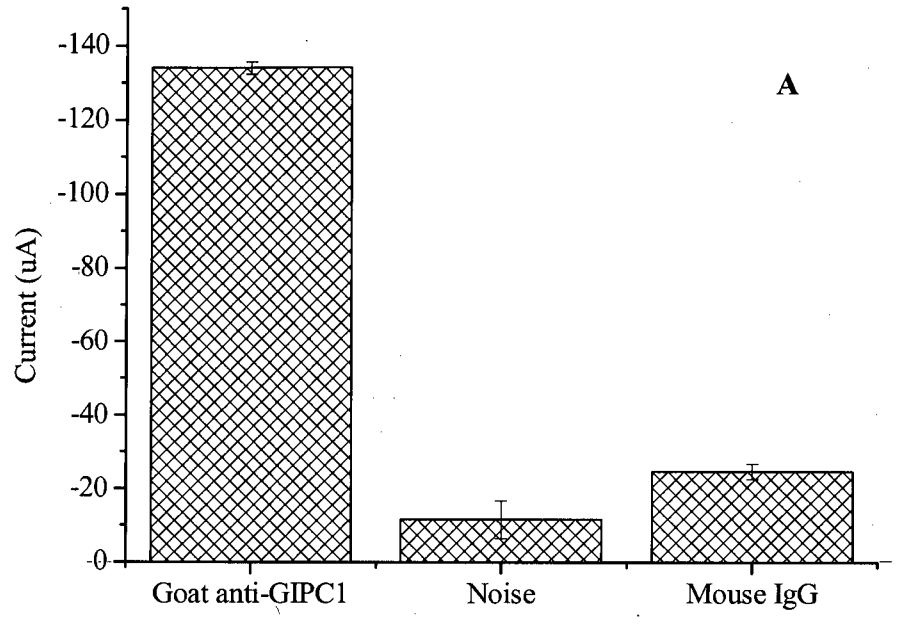
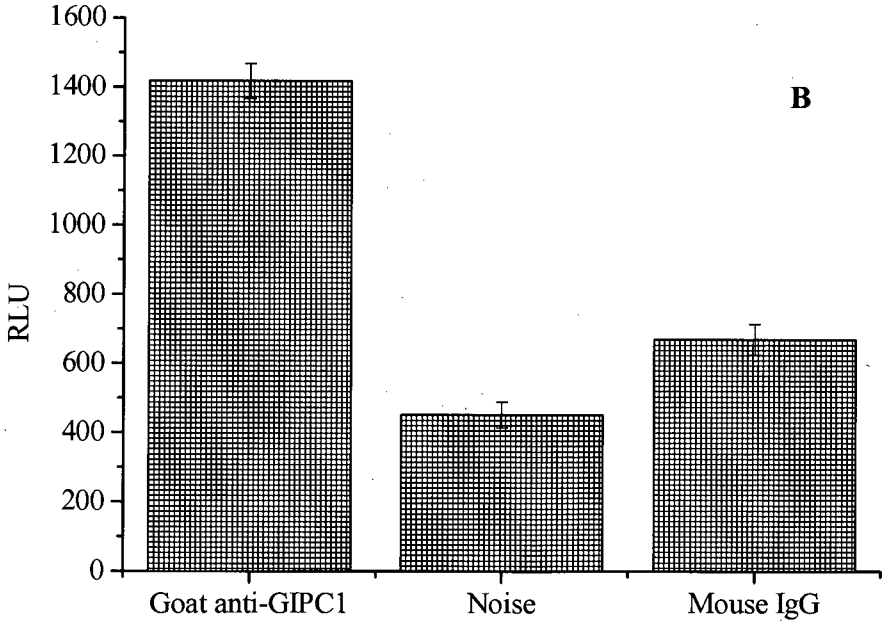

A
Current (uA)
-160
-140
-120
-100
-80
-60
-40
-20
0
0.0
0.1
0.2
0.3
0.4
anti GIPC1 concetration (ug/ml)
B
Signal (RLU)
1800
1600
1400
1200
1000
800
600
400
0.0
0.1
0.2
0.3
0.4
anti GIPC1 concentration (ug/ml)

Figure 14




**ELFB**




**ELISA**

**Figure 15**