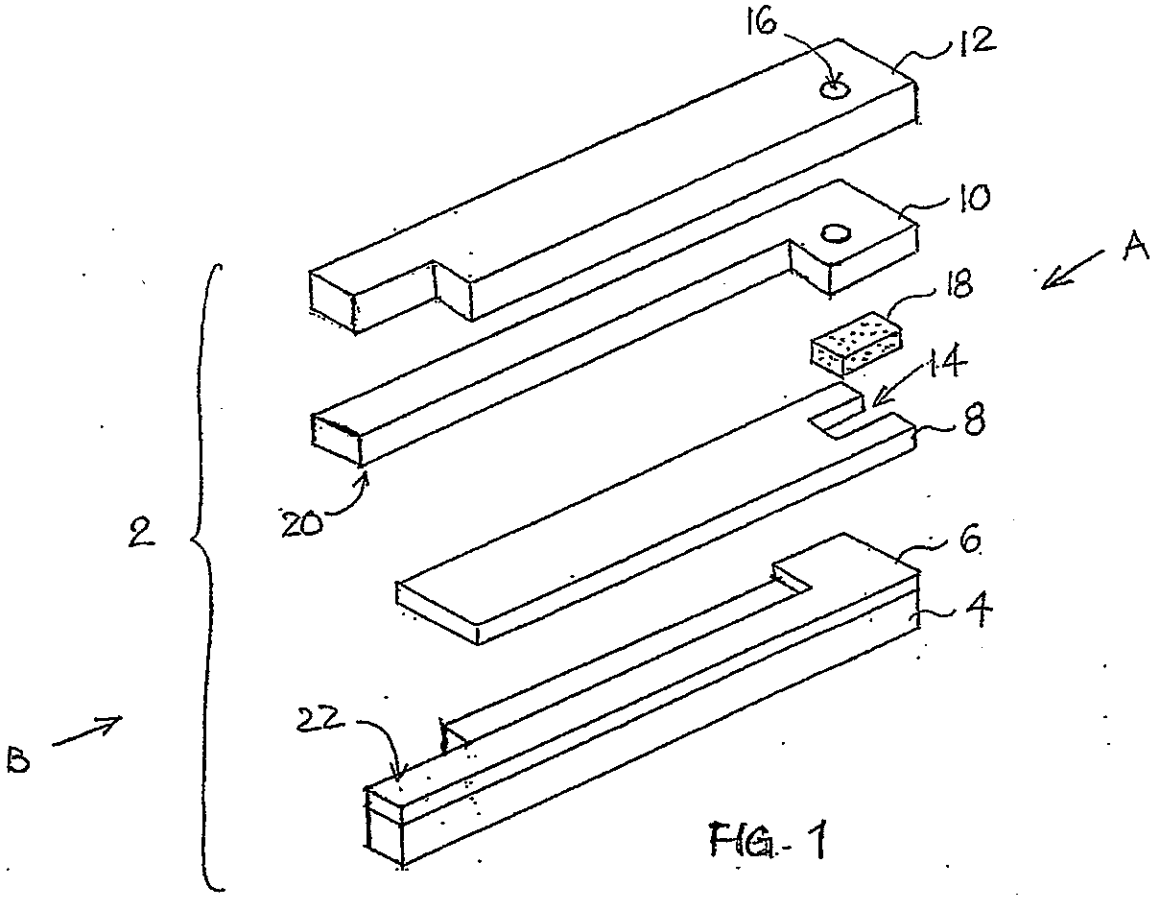


FIG. 1

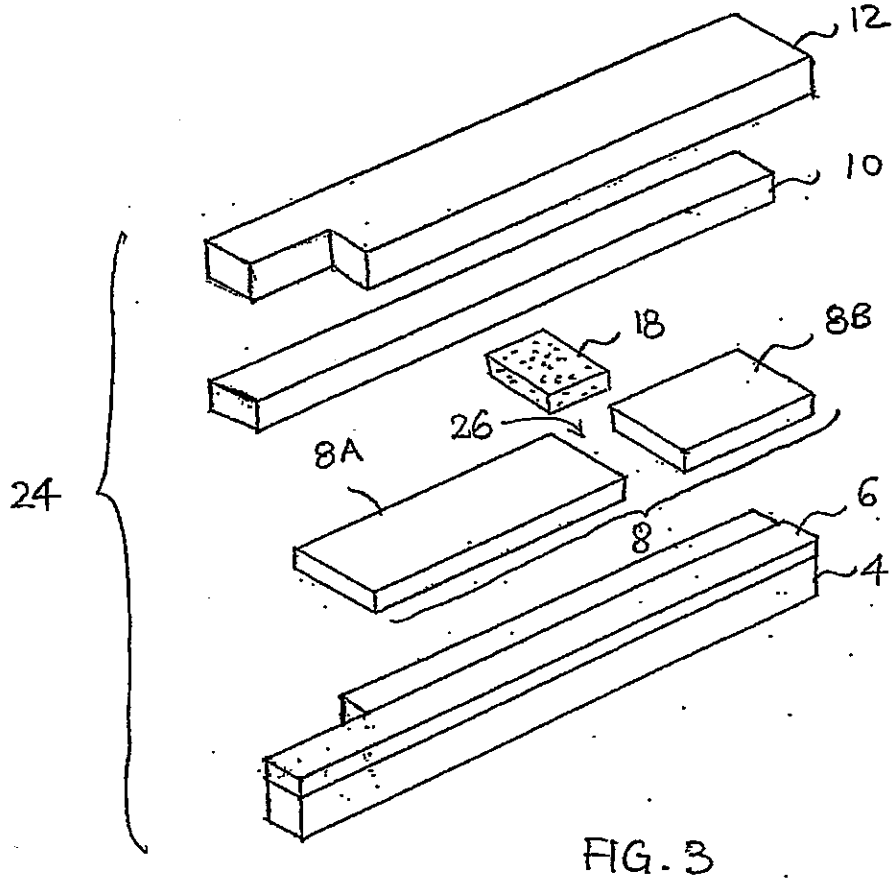


FIG. 3

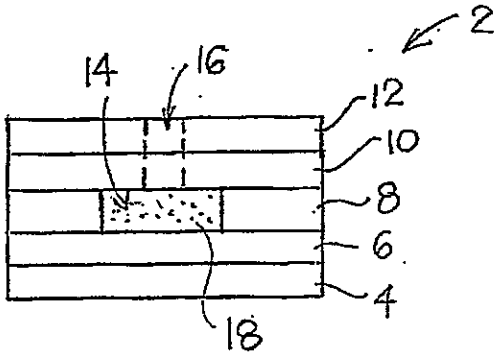


FIG. 2A

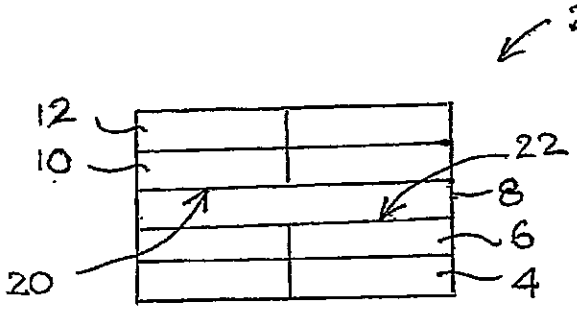


FIG. 2B

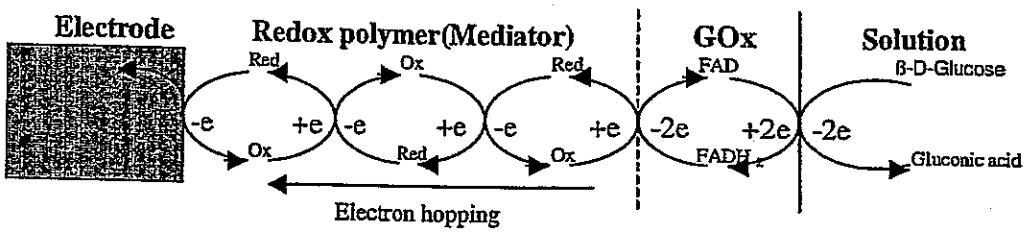
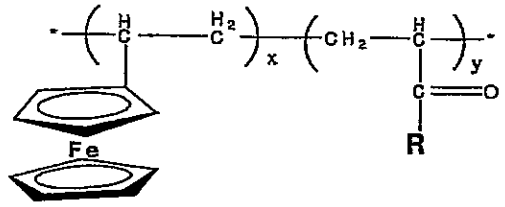
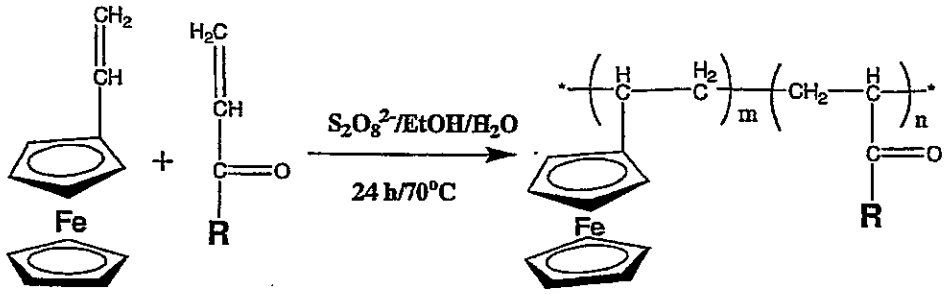


Figure 4. Illustration of redox polymer mediated biosensing process.



R= C_nH_{2n}-NH_2, C_nH_{2n}-COOH, NH-C_nH_{2n}-SO_3H (n = 0 - 8)

Figure 5. Structure of water-soluble and cross-linkable ferrocenyl redox.polymer.



R= C_nH_{2n}-NH_2, C_nH_{2n}-COOH, NH-C_nH_{2n}-SO_3H (n = 0 - 8)

Figure 6. Polymerization mechanism of the redox polymer

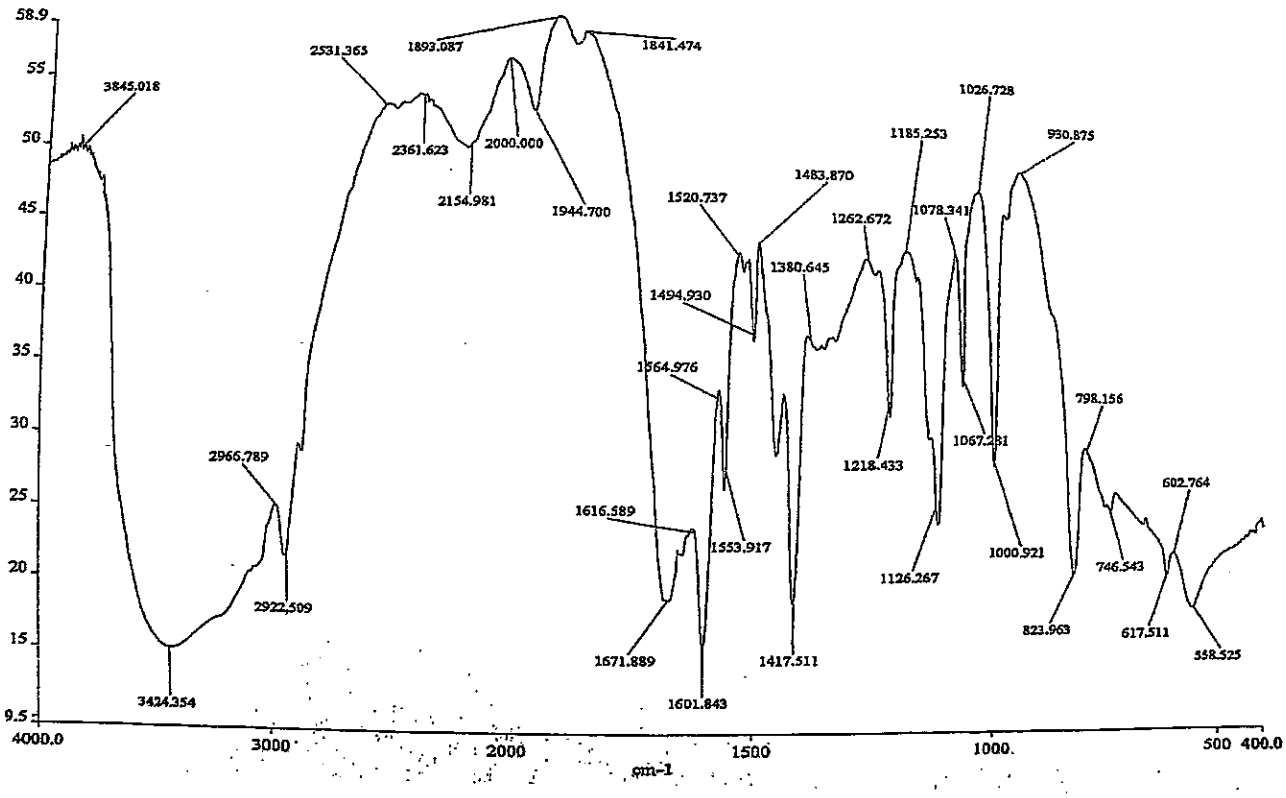


FIGURE 7. FT-IR Spectrum of PAA-VFc and PAAS-VFc redox polymer

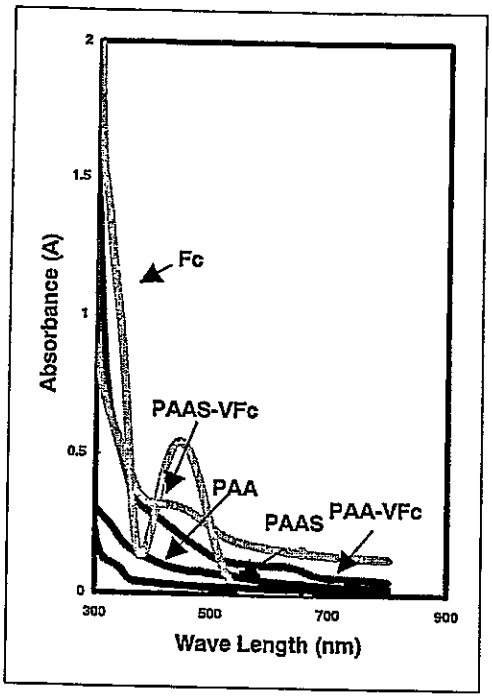


FIGURE 8. UV-visible spectra of Fc, PAA PAAS and their VFc co-polymers.

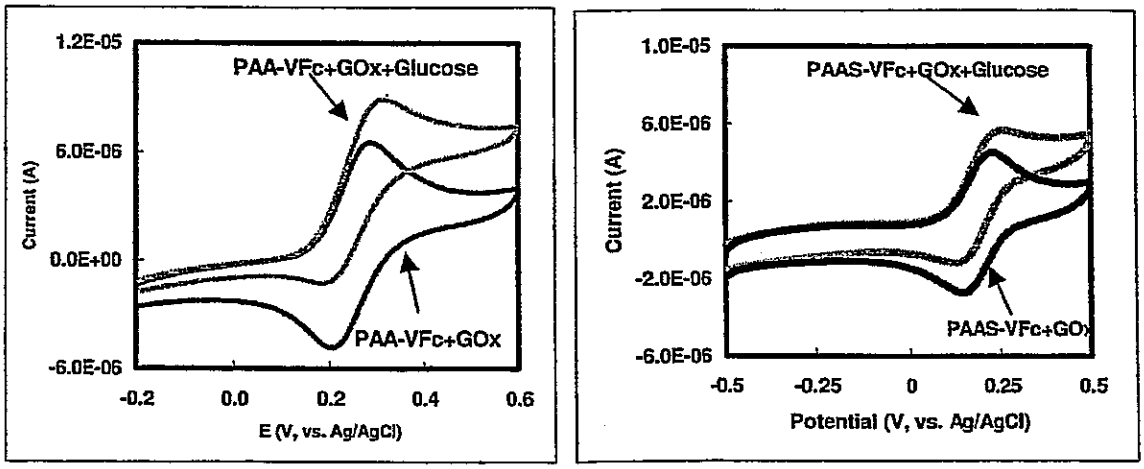


Figure 9. Cyclic voltammograms of redox polymers in various systems.

Phosphate-buffered saline, potential scan rate = 100 mV/s

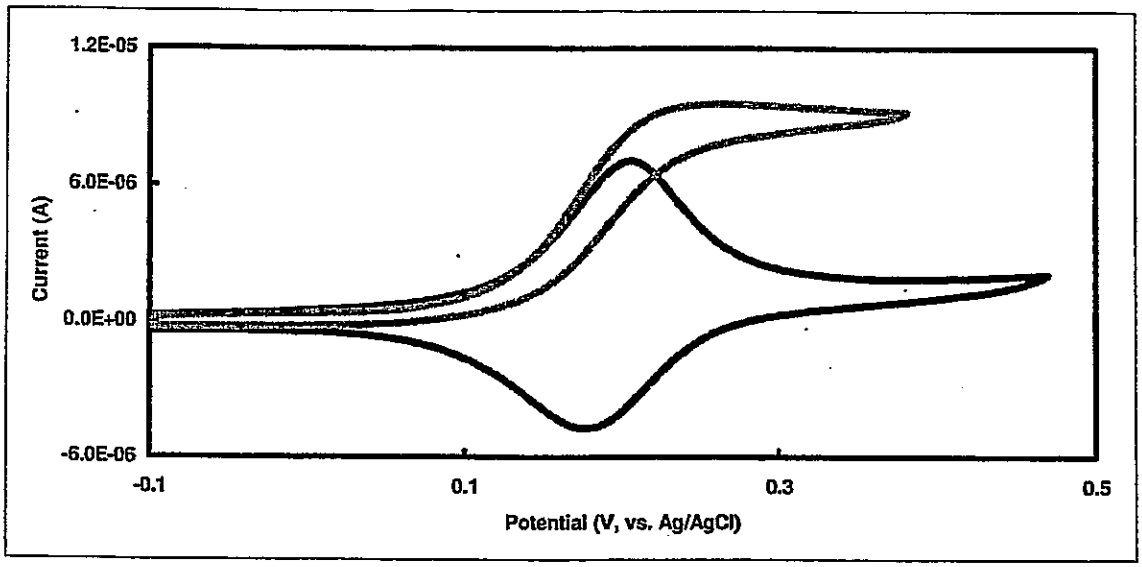


Figure 10. Cyclic voltammogram of cross-linked PAA-VFc-GOx-BSA film on gold electrode.
PBS, potential scan rate 50 mV/s.

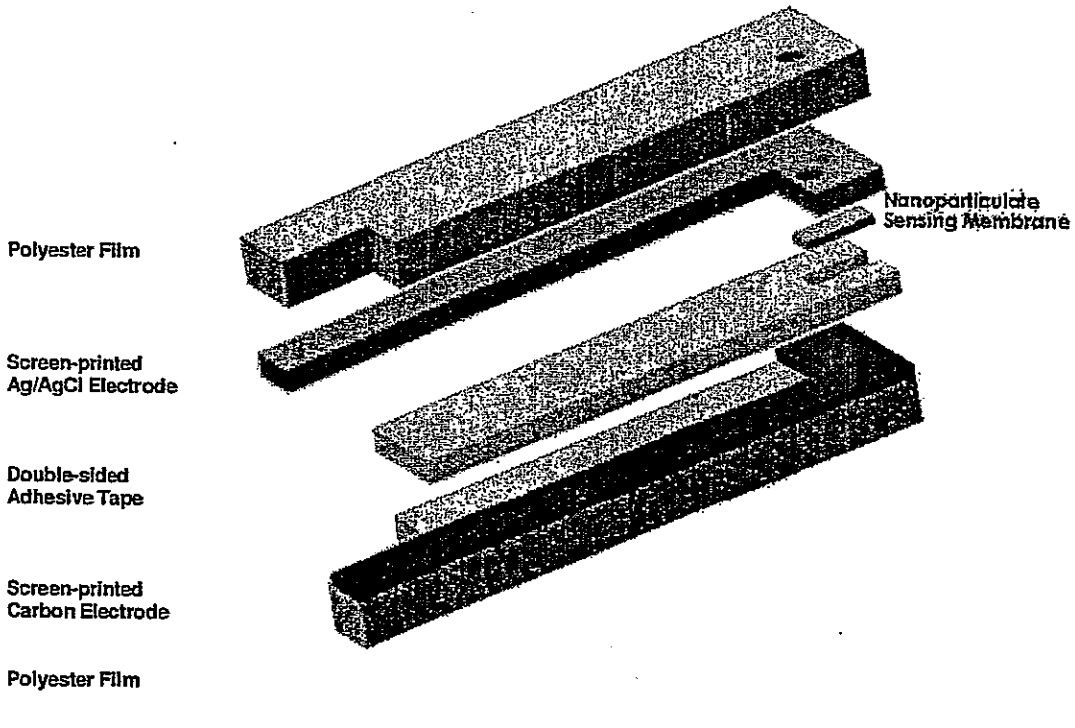

Polyester Film
Screen-printed
Ag/AgCl Electrode
Double-sided
Adhesive Tape
Screen-printed
Carbon Electrode
Polyester Film
Nanoparticulate
Sensing Membrane

Figure 11

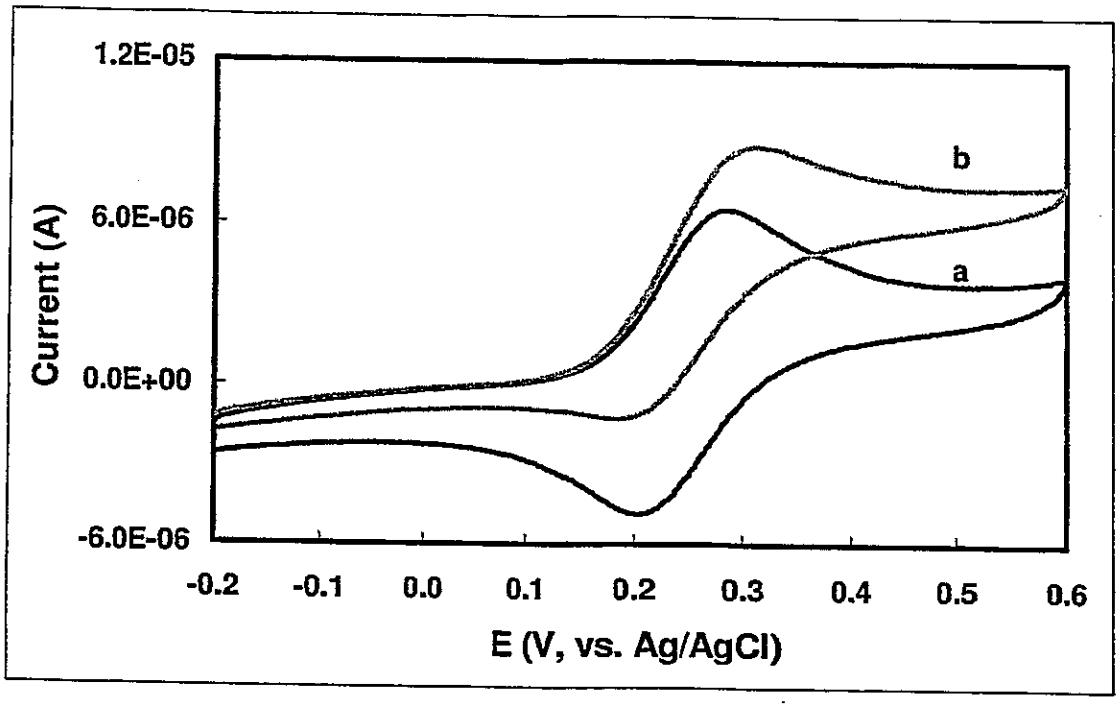

1.2E-05
6.0E-06
0.0E+00
-6.0E-06
Current (A)
b
a
-0.2
-0.1
0.0
0.1
0.2
0.3
0.4
0.5
0.6
E (V, vs. Ag/AgCl)

Figure 12

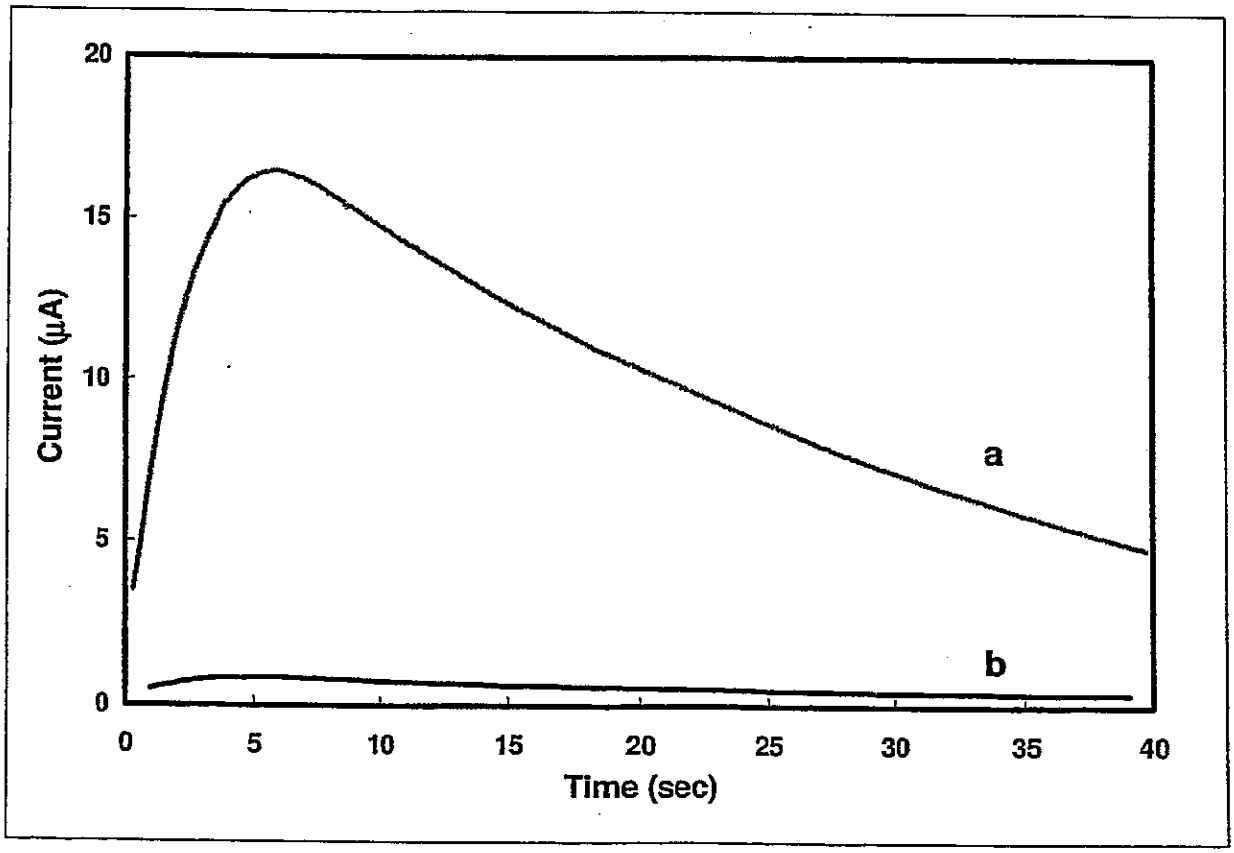


Figure 13

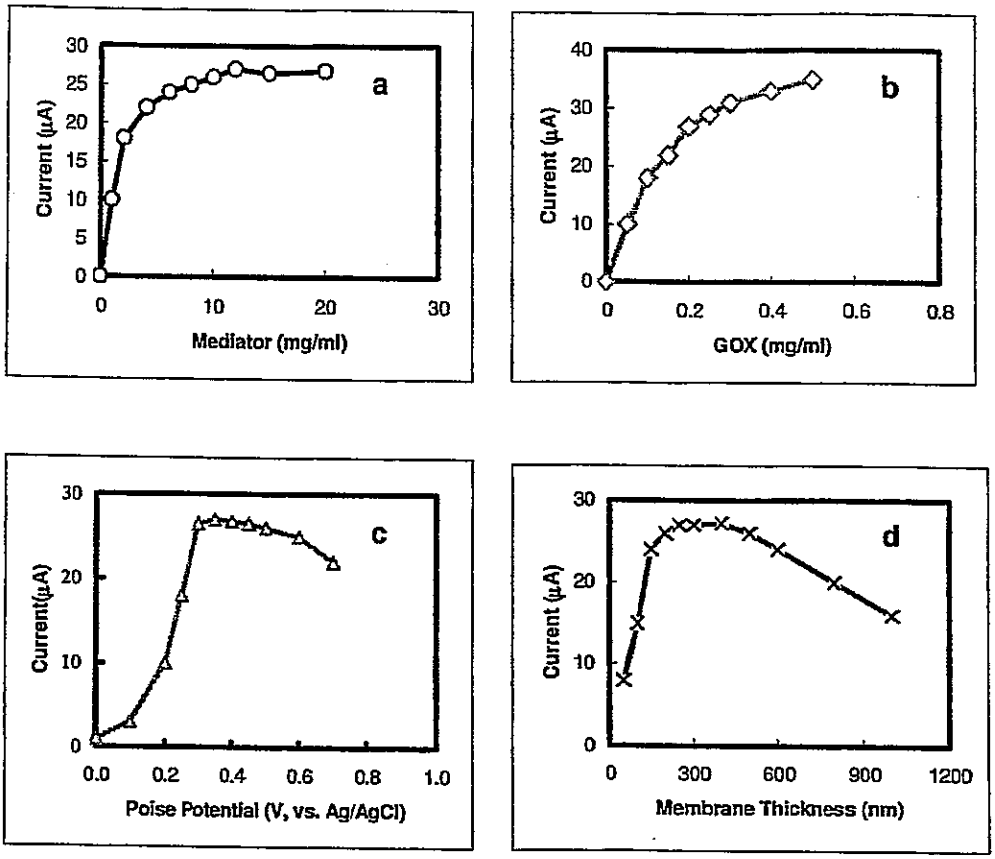

a
Current (μA)
Mediator (mg/ml)
b
Current (μA)
GOX (mg/ml)
c
Current(μA)
Poise Potential (V, vs. Ag/AgCl)
d
Current (μA)
Membrane Thickness (nm)

Figure 14

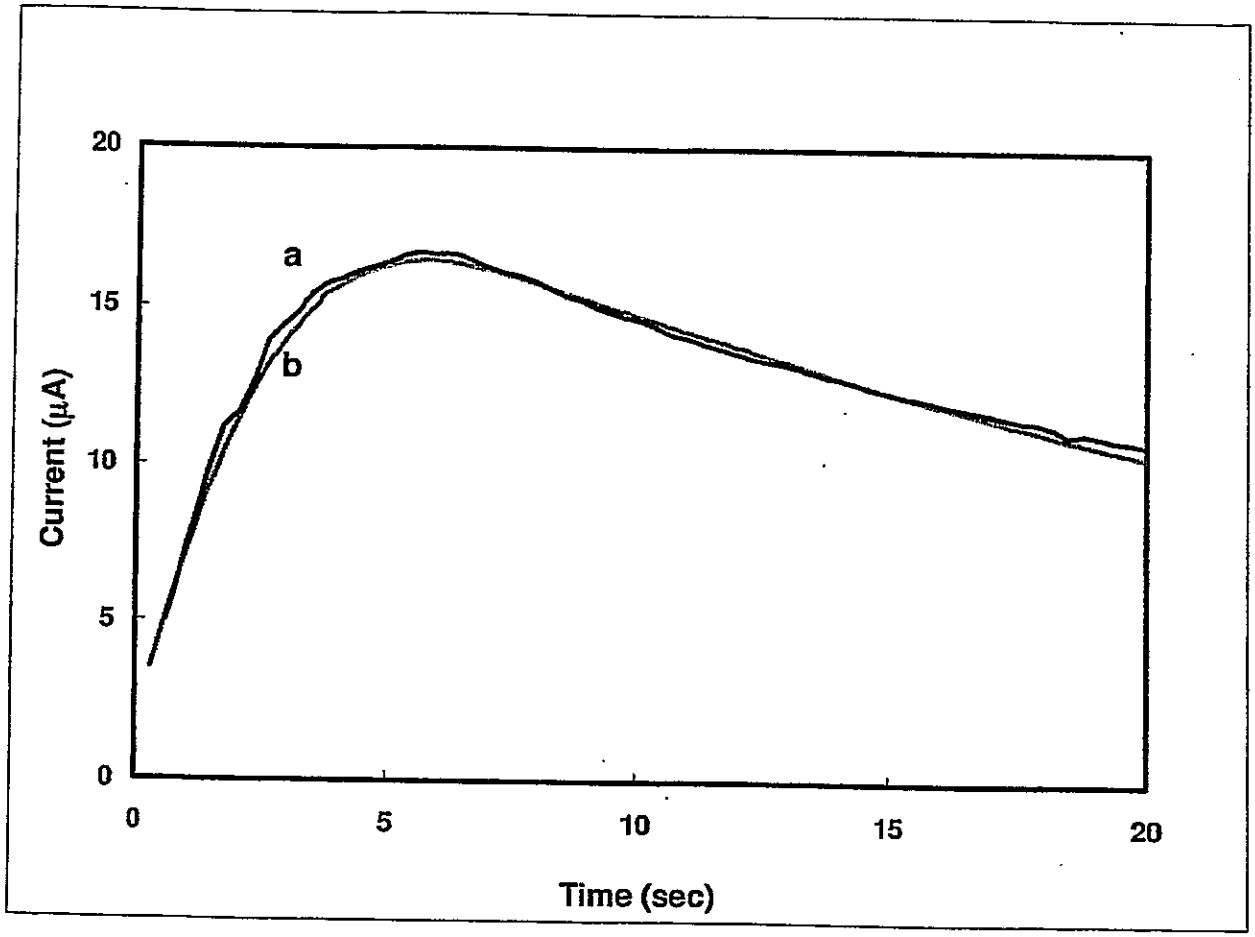


Figure 15

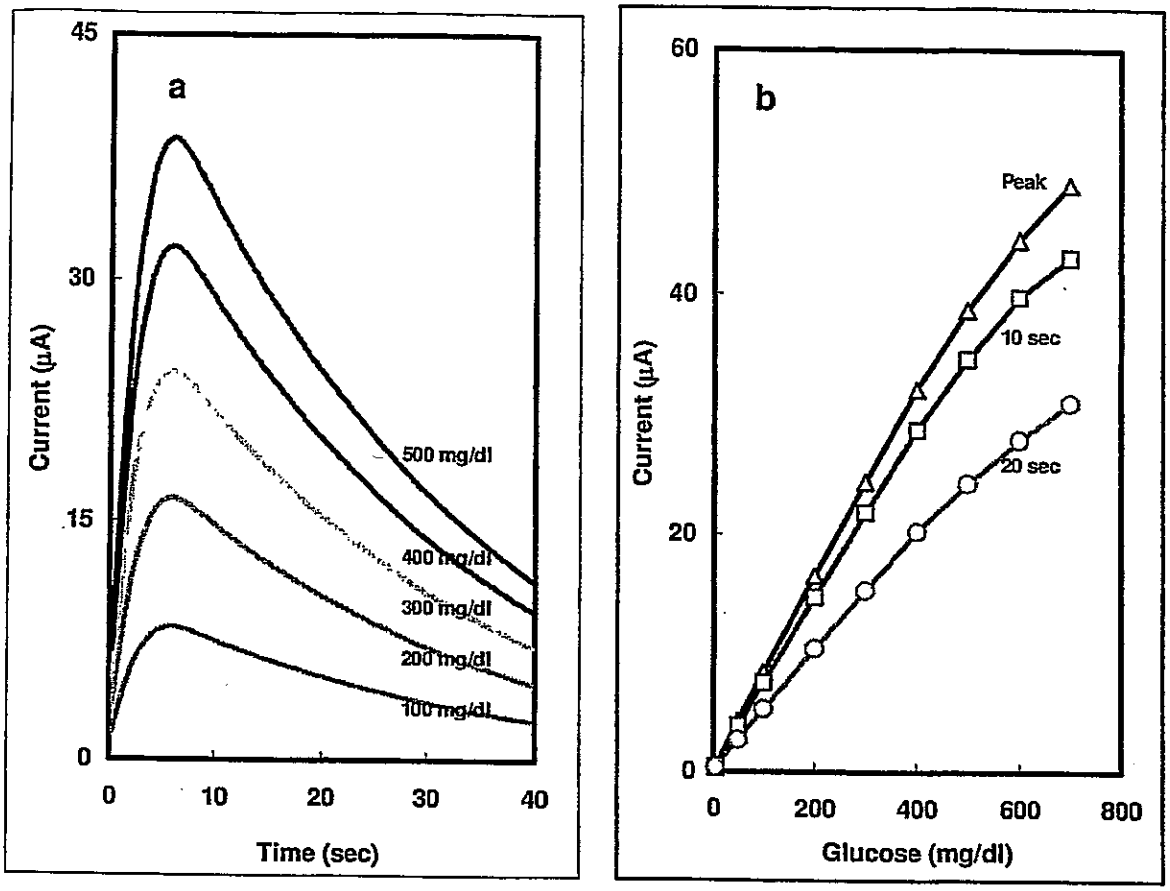

a
45
30
15
0
Current (μA)
0
10
20
30
40
Time (sec)
500 mg/dl
400 mg/dl
300 mg/dl
200 mg/dl
100 mg/dl
b
60
40
20
0
Current (μA)
0
200
400
600
800
Glucose (mg/dl)
Peak
10 sec
20 sec

Figure 16