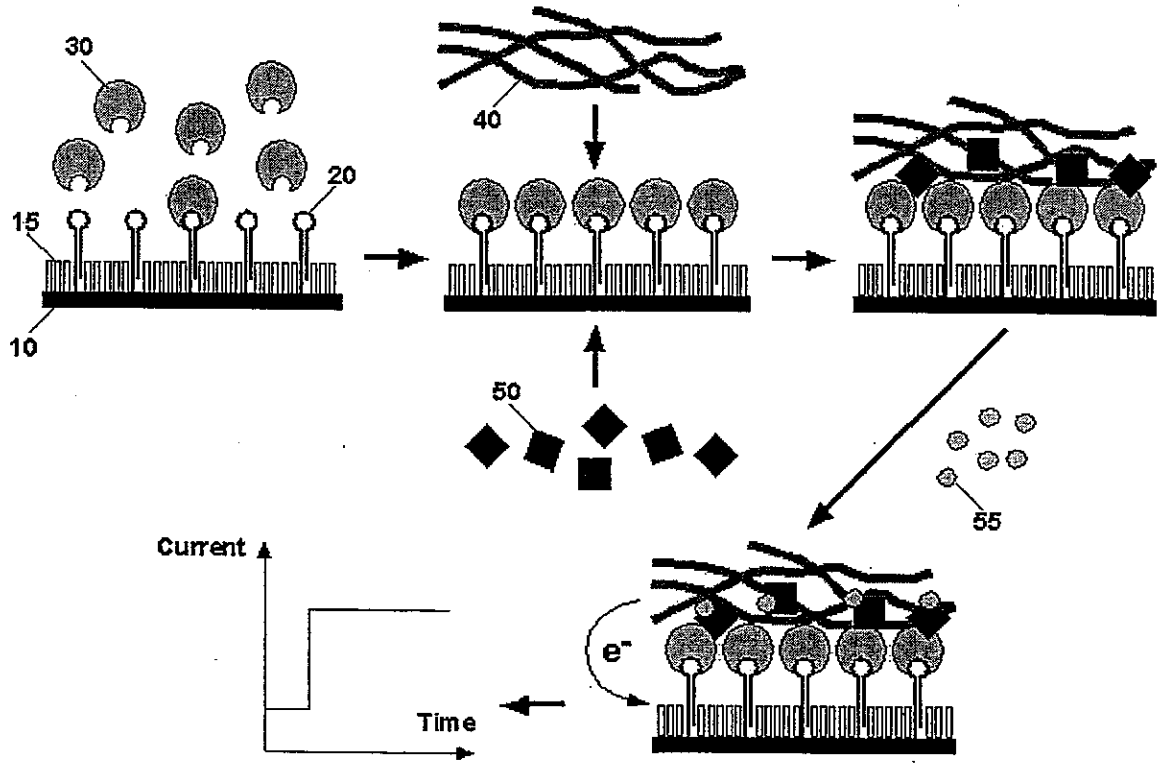


FIGURE 1A

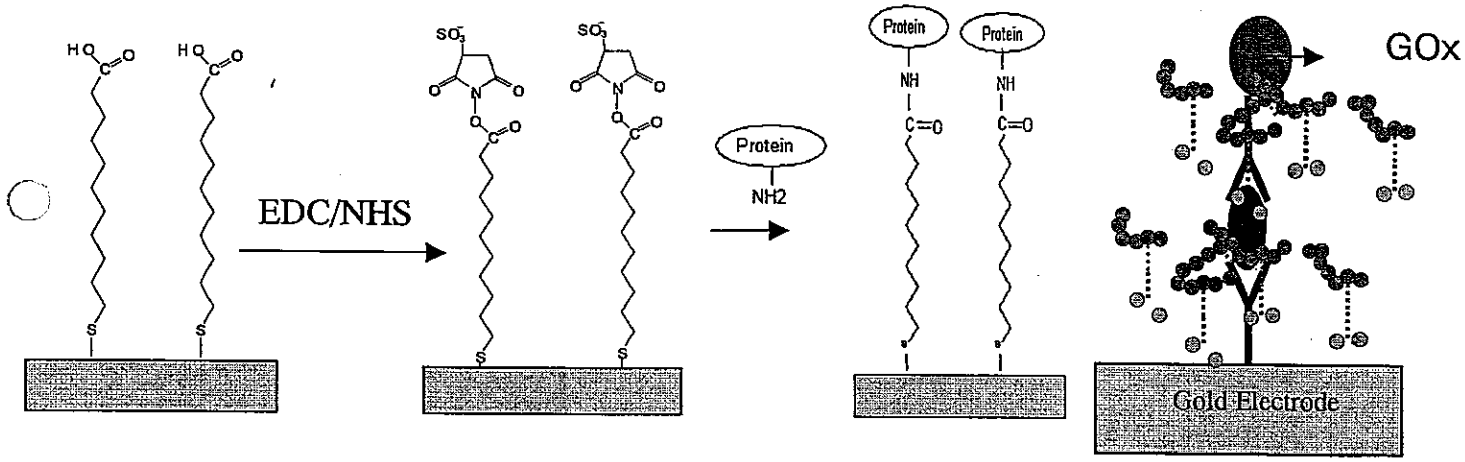

EDC/NHS
Protein
NH2
Protein
Protein
NH
C=O
NH
C=O
GOx
Gold Electrode

FIGURE 1B

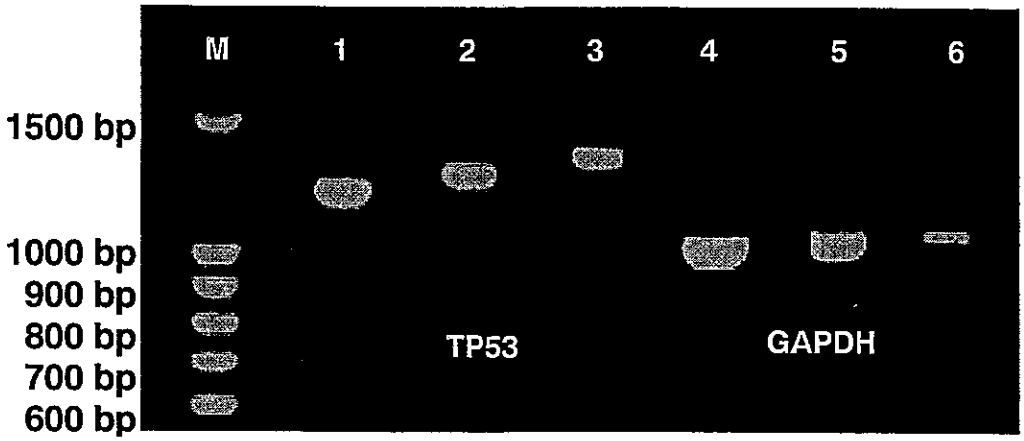


FIGURE 2

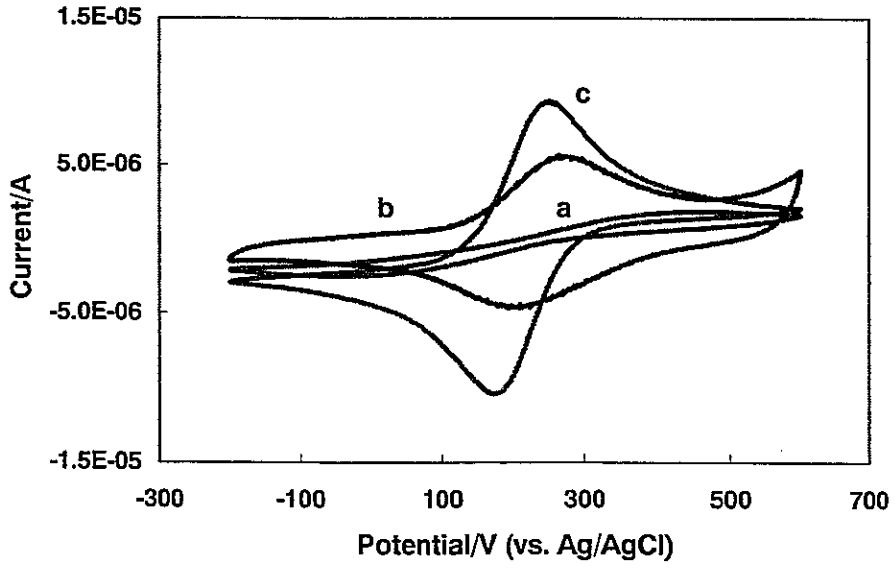


FIGURE 3

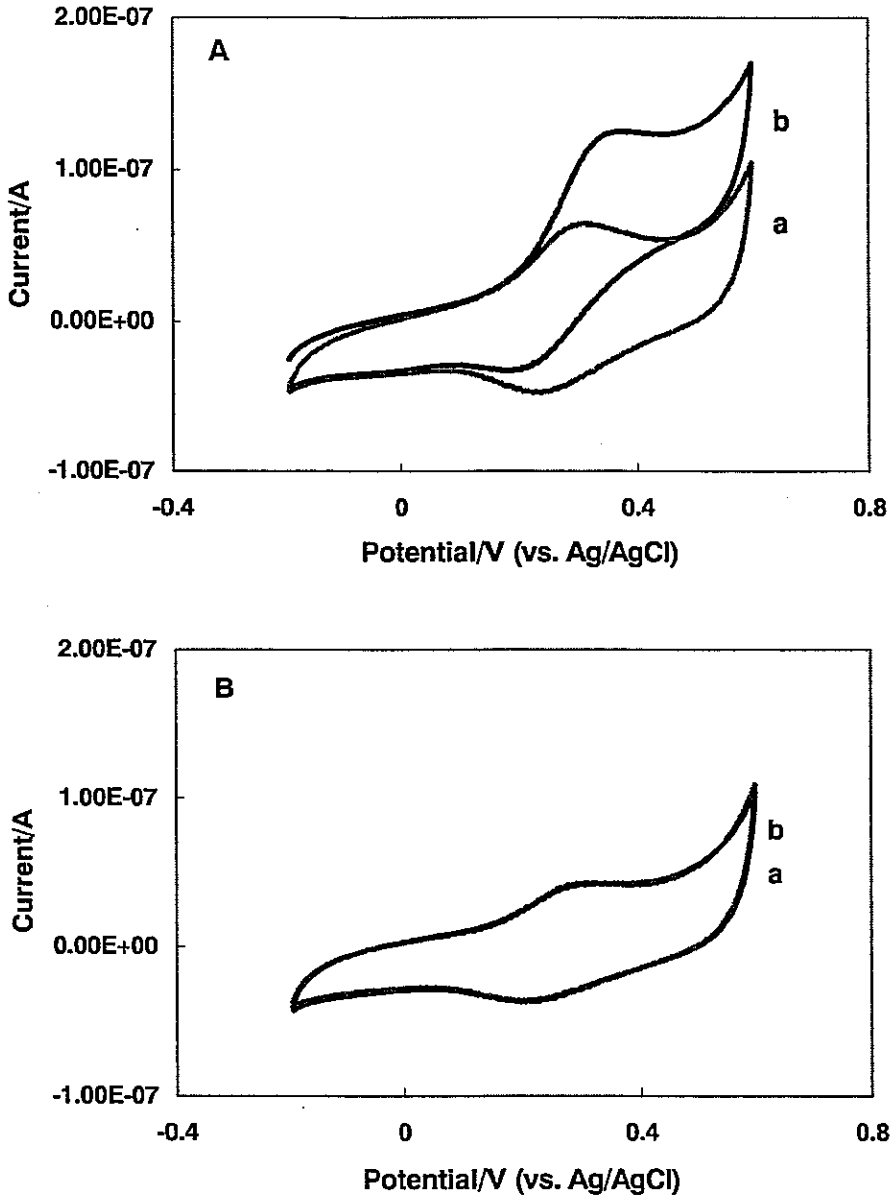

A
2.00E-07
1.00E-07
0.00E+00
-1.00E-07
Current/A
b
a
-0.4
0
0.4
0.8
Potential/V (vs. Ag/AgCl)
B
2.00E-07
1.00E-07
0.00E+00
-1.00E-07
Current/A
b
a
-0.4
0
0.4
0.8
Potential/V (vs. Ag/AgCl)

Figure 4

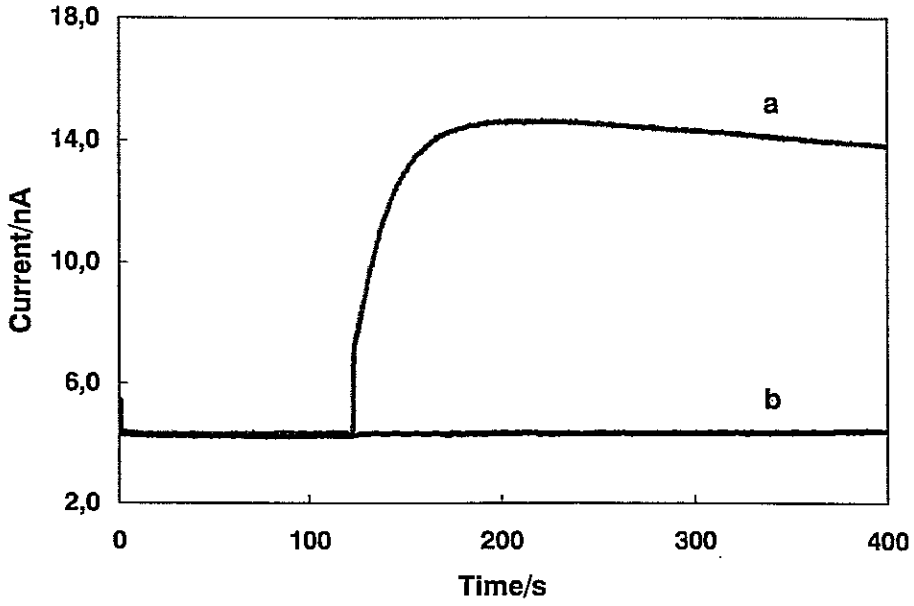
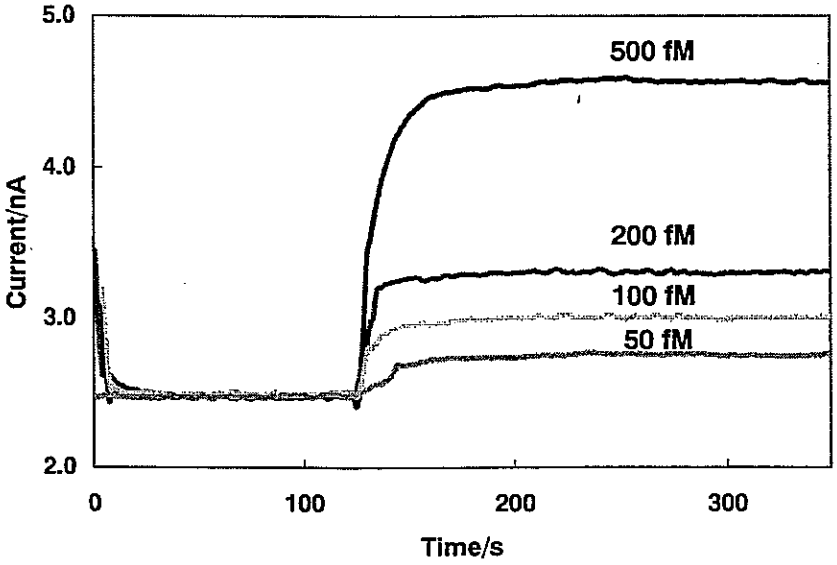


Figure 5


5.0
4.0
3.0
2.0
Current/nA
500 fM
200 fM
100 fM
50 fM
0
100
200
300
Time/s

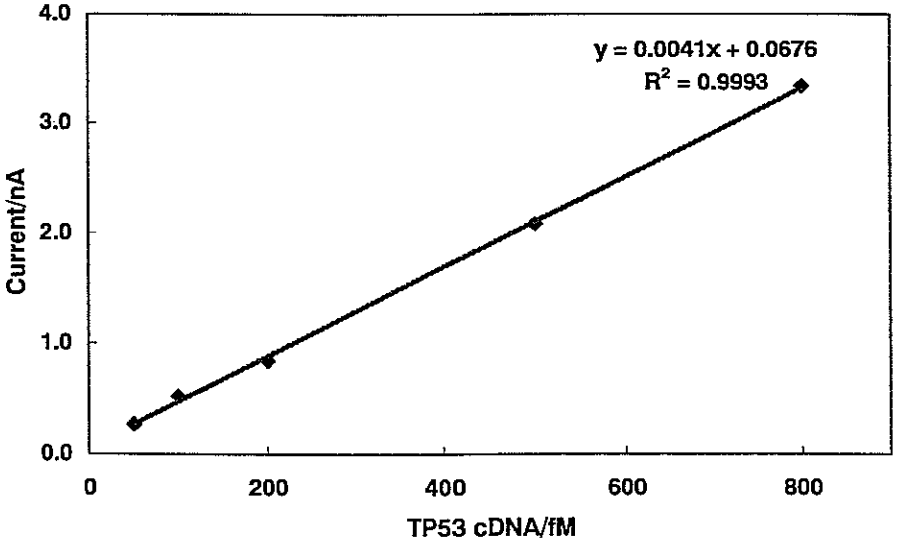

4.0
3.0
2.0
1.0
0.0
Current/nA
y = 0.0041x + 0.0676
R2 = 0.9993
0
200
400
600
800
TP53 cDNA/fM

FIGURE 6

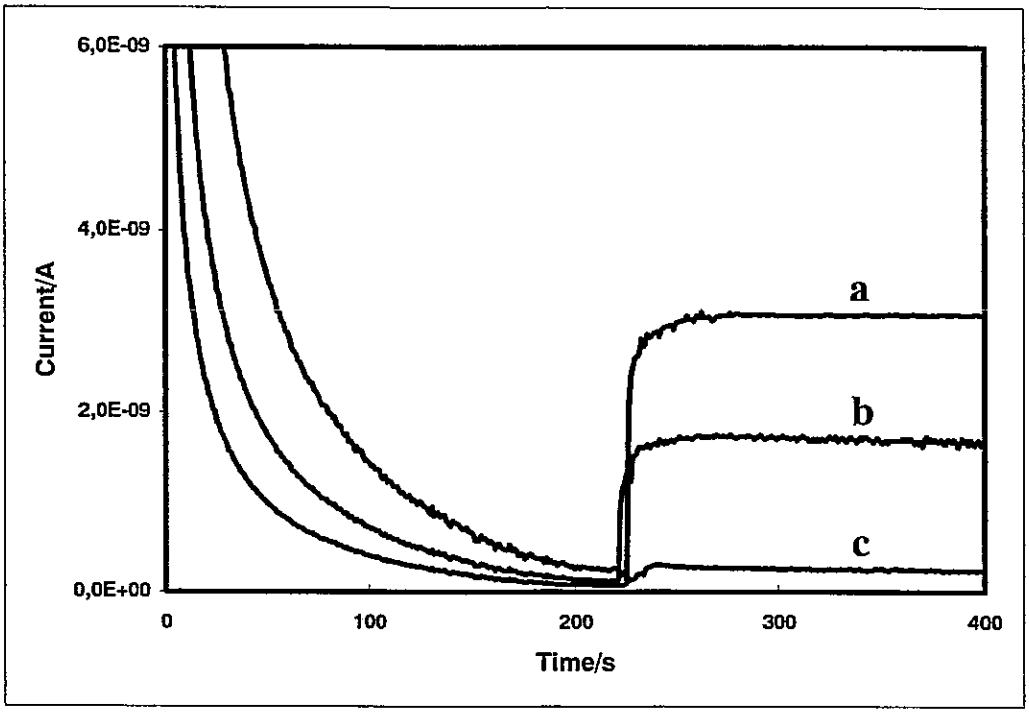


FIGURE 7

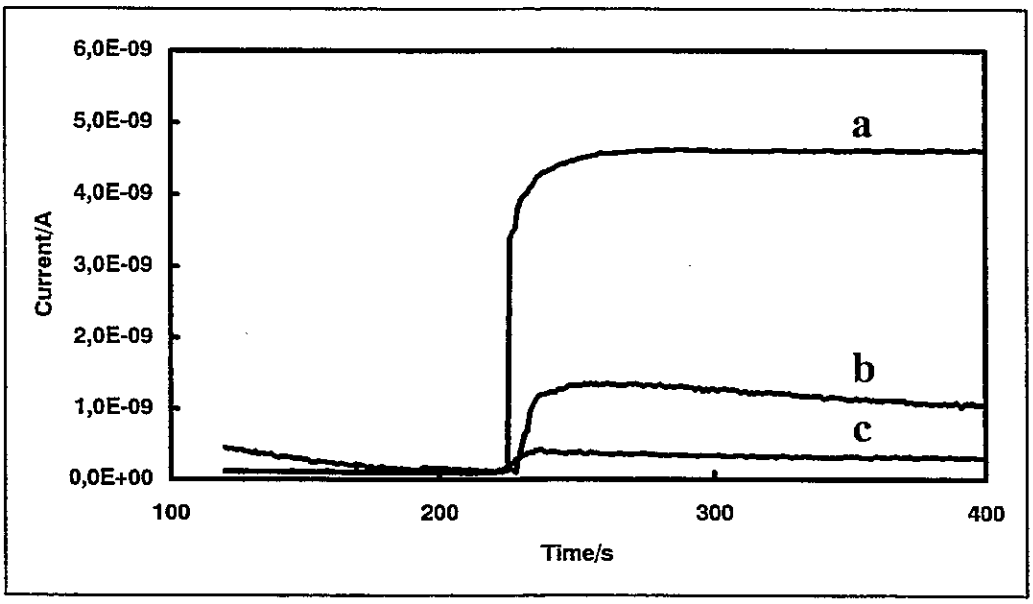

6,0E-09
5,0E-09
4,0E-09
3,0E-09
2,0E-09
1,0E-09
0,0E+00
Current/A
100
200
300
400
Time/s
a
b
c

FIGURE 8

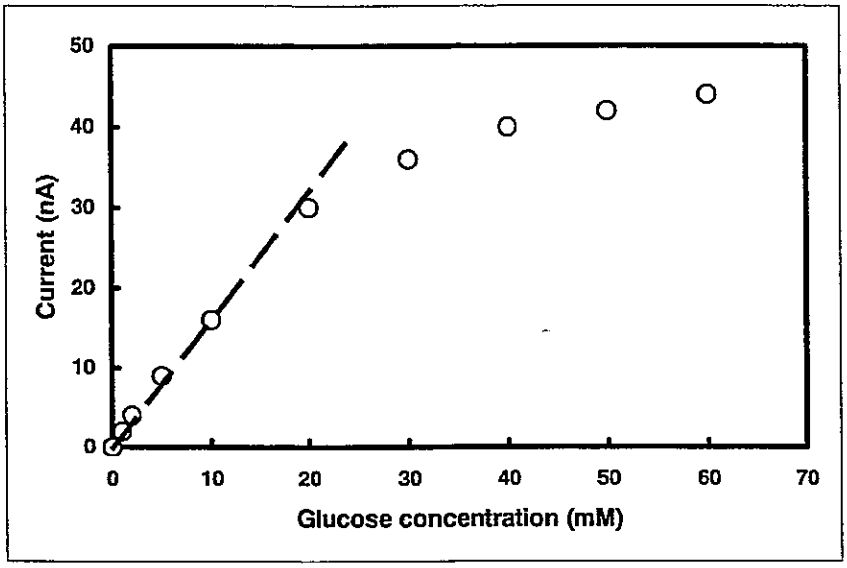

50
40
30
20
10
0
Current (nA)
0
10
20
30
40
50
60
70
Glucose concentration (mM)

FIGURE 9

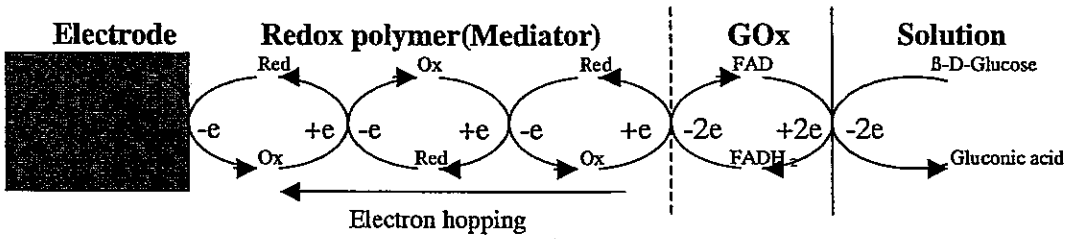
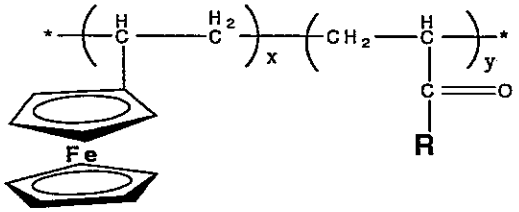


Illustration of redox polymer mediated bio-sensing process.

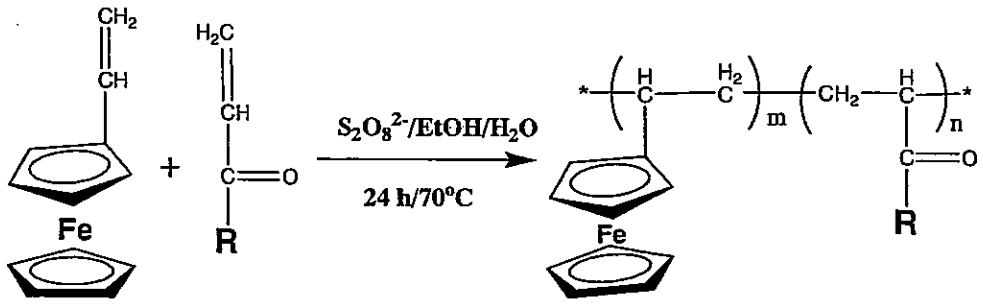
FIGURE 10



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

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

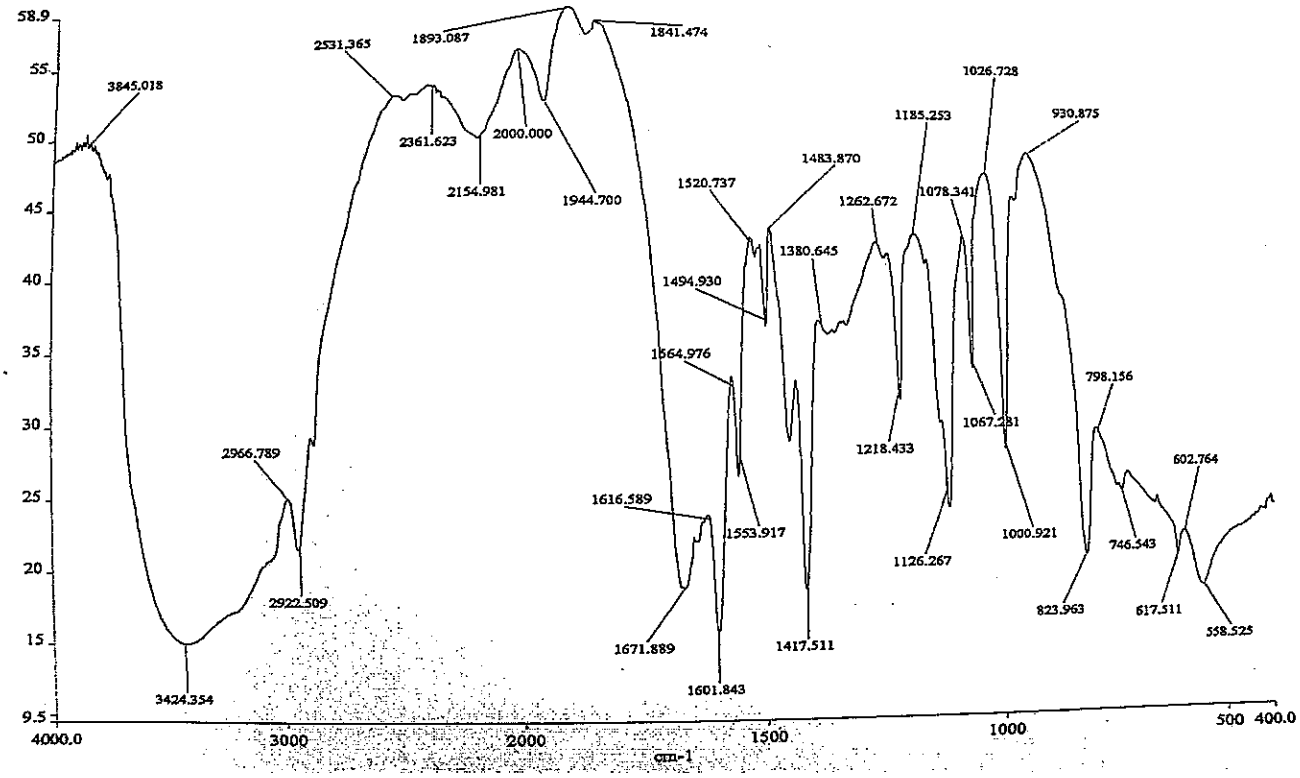
FIGURE 11



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

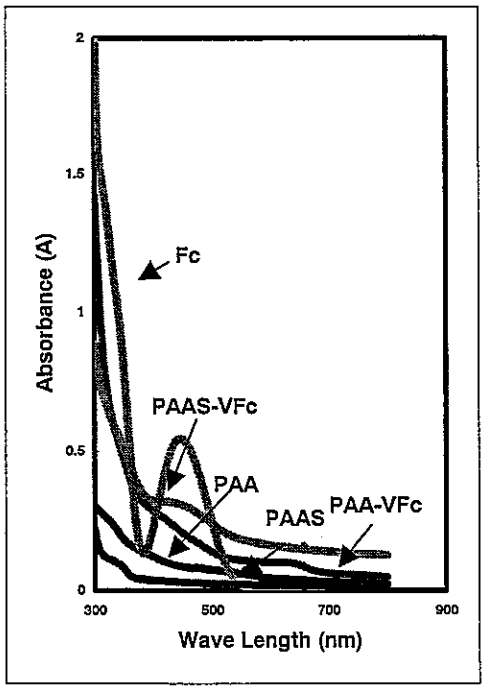
Polymerization mechanism of the redox polymer.

FIGURE 12



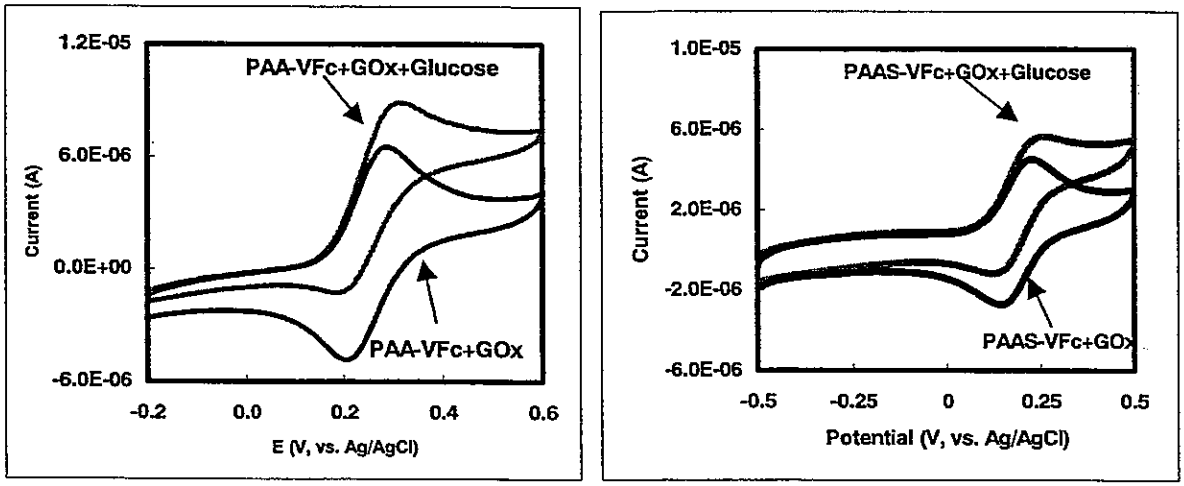
FT-IR Spectrum of PAA-VFc and PAAS-VFc redox polymer

FIGURE 13



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

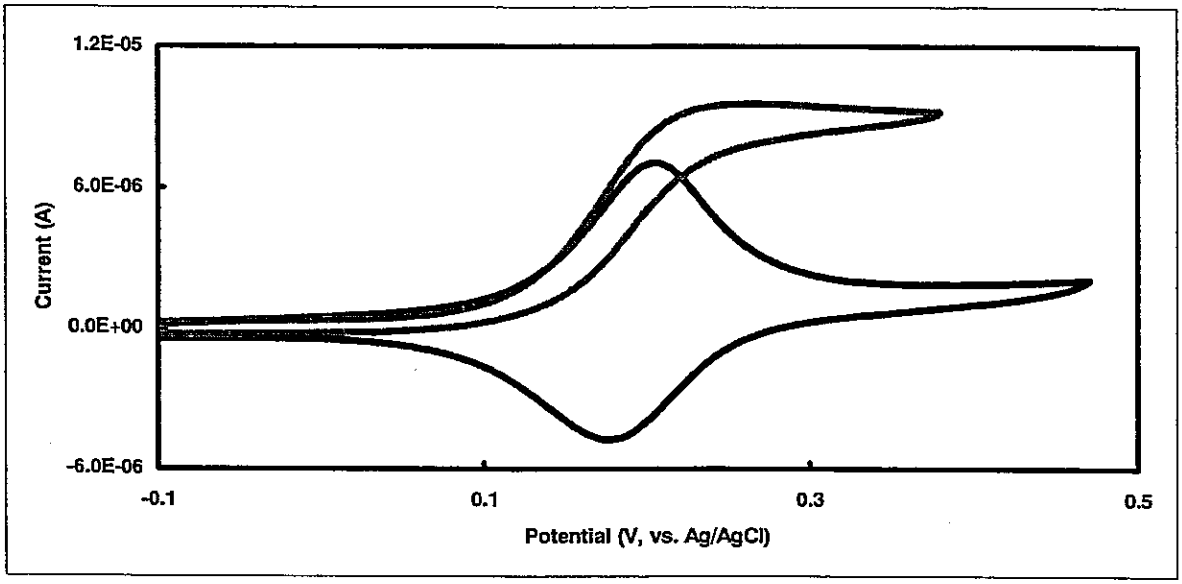
FIGURE 14



Cyclic voltammograms of redox polymers in various systems.

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

FIGURE 15



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

FIGURE 16