Supplementary Information

GRAPHENE OXIDE INTEGRATED SENSOR FOR ELECTROCHEMICAL MONITORING OF MITOMYCIN C–DNA INTERACTION

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In order to find the optimum MC concentration onto GO modified PGE, the changes of MC oxidation signal were monitored for a range of MC concentrations varying from 5 to 120 µg/mL . A sharp increase on the MC signal was obtained for concentrations up to 80 µg/mL (supporting Figure S1), and then the response leveled off till 120 µg/mL of MC (not shown). Thus, 80 µg/mL was chosen as the optimum MC concentration for our further study. From the resulting calibration plot of MC (shown inset in Figure S1), the detection limit (DL) was calculated as 4.72 µg/mL according to procedure described by Miller and Miller [43].

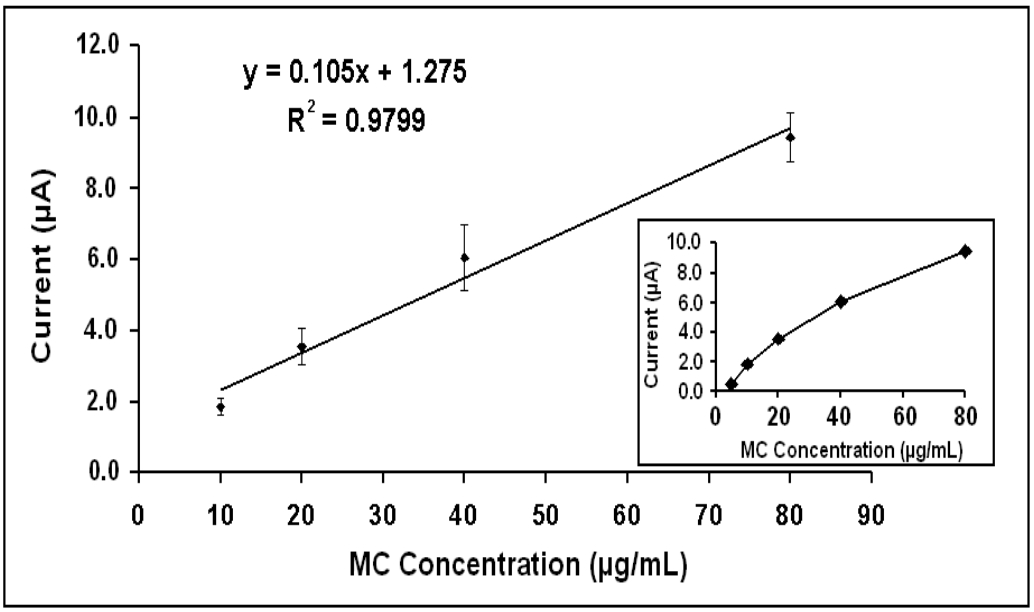

Figure S1: Calibration plot presenting the changes of MC oxidation signal measured in the presence of various concentration levels of MC from 10 to 80 µg/mL; the inset figure presents the line graph of MC oxidation signal obtained in MC concentrations between 5 and 80 µg/mL during 7.5 min immobilization time on GO-PGEs electrodes.

Before and after interaction process of MC with polydAdT modified electrode, or polydGdC modified electrode, the changes at the MC oxidation signal were also monitored in order to prove the preferential interaction of MC to the G-C sites compared to the A-T sites of the DNA (shown in Figure S2).

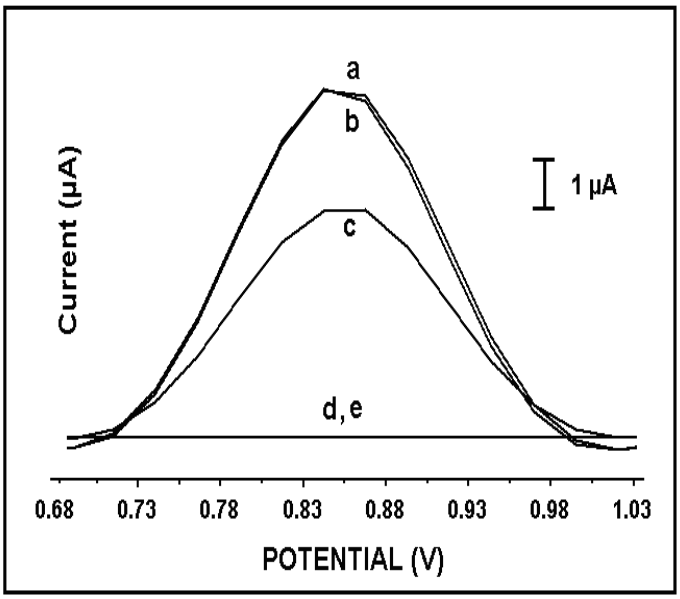

Figure S2: Differential pulse voltammograms representing MC oxidation signals observed before and after the interaction of 80 µg/mL MC with 120 µg/mL polydAdT, or poly dGdC using GO-modified electrodes; the oxidation signal of MC: **(a)** before interaction, and after interaction with **(b)** polydAdT, or **(c)** polydGdC. The control experiments performed after immobilization of 120 µg/mL **(d)** polydAdT and **(e)** polydGdC onto GO modified electrodes before surface confined interaction with MC.

Similar to the results shown in Figure 5A-a to a', a 37.5 % decrease of MC signal was also recorded for the MC-polydGdC interaction time of 7.5 min (shown in Figure S2-a to c). On the contrary, there was only a 1.4 % decrease at MC signal in the case of MC- polydAdT interaction (shown in Figure S2-a to b).