Supporting Information

Effective imprinting of an anticancer drug, 6-thioguanine, via mussel inspired self-polymerization of dopamine over reduced graphene oxide

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Characterization

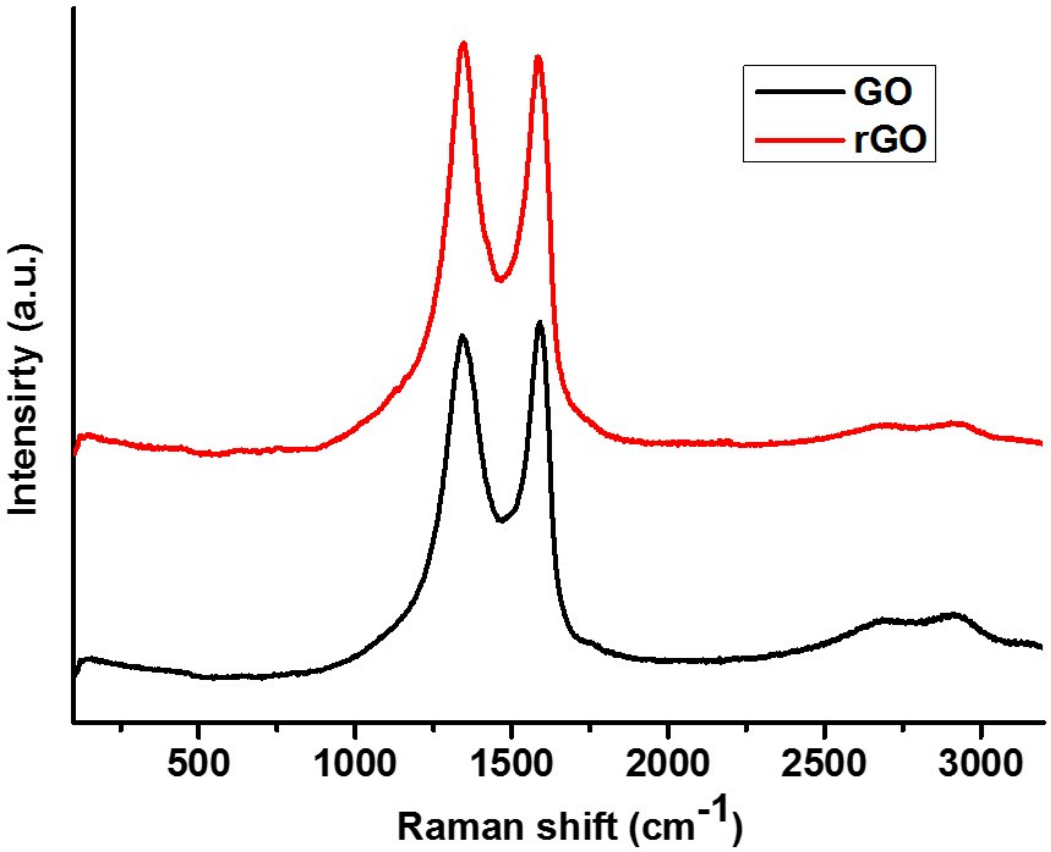

Fig. SI 1. The typical Raman spectra of GO and rGO.

Influence and optimization of experimental parameters

In order to exploit the maximum efficacy of MIP-rGO/GCE for 6-TG, 6-TG accumulation time and rGO loading content were optimized carefully as shown in Figure SI 1.

Fig. SI 2(a) depicts the study of accumulation time of 6-TG inside the MIP polymer matrix by incubating the MIP-rGO/GCE sensor in the 6-TG sample solutionm. The results shows that the 6-TG oxidation current signals enahnce until 2 minutes, and then increasing the accumulation time does not affect the current response indicating that the all the imprinted cavities are pre-occupied. Hence, 2 minutes incubation time was employed in all the studies.

Figure SI 2(b) illustrates the rGO loading capacity which revealed that 1 mg mL^{-1} of graphene

loading provided the highest oxidation current value. Thus, 1 mg. mL^{-1} graphene loading was used in this study. The lower or the higher rGO loading than the optimized amount lead to decrease in oxidation signals which may be attributed to the in-sufficient loading or thick rGO coating, respectively. In addition, it was observed in our study that small multiple aliquots (~1-2 mL) with lower concentrations (1 mg mL^{-1}) offered better oxidation signals as compared to single coating with highly concentrated dispersion of rGO in dissolving solvent (DMF) (data not shown).The results shows that gradually increasing the aliquots from 1 to 4, the effective surface area for the 6-TG imprinting cavities was increased which in turn promotes oxidation of 6-TG but there was no more improvement in signals with further increase in the number of aliquots. This indicates that the rGO film thickness impedes the high recognition efficiency of the sensor. Hence, 4 successive drop-coating of rGO were found to be suitable. The present graphene loading data is very similar to our previous reports (19, 27-29).

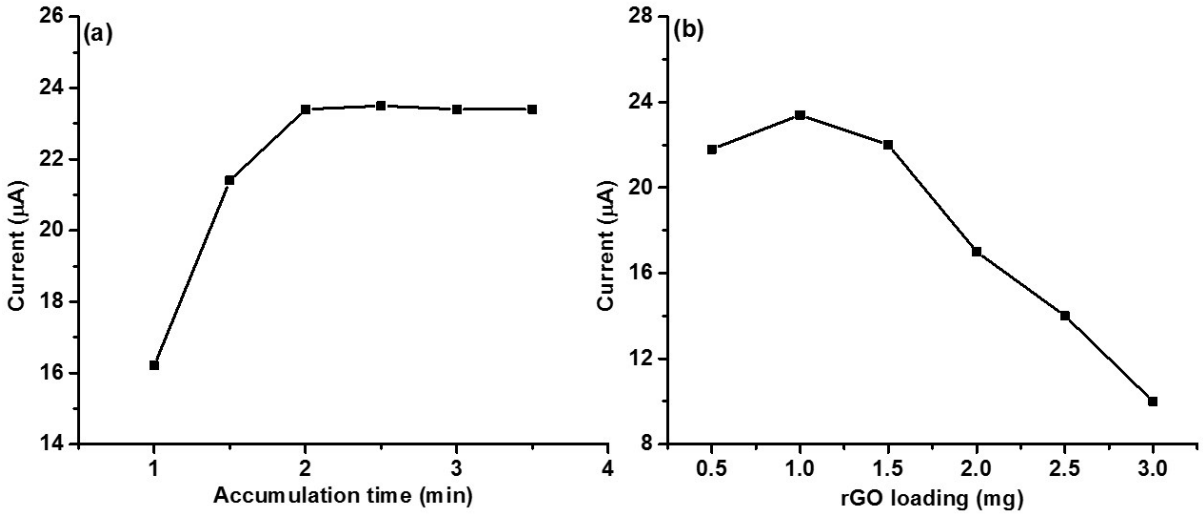

Fig. SI 2. The effects of (a) 6-TG accumulation time and (b) rGO loading. Experimental conditions: 0.1 mol L^{-1} PBS (pH 7.2) and scan rate; 100 mV s^{-1}.

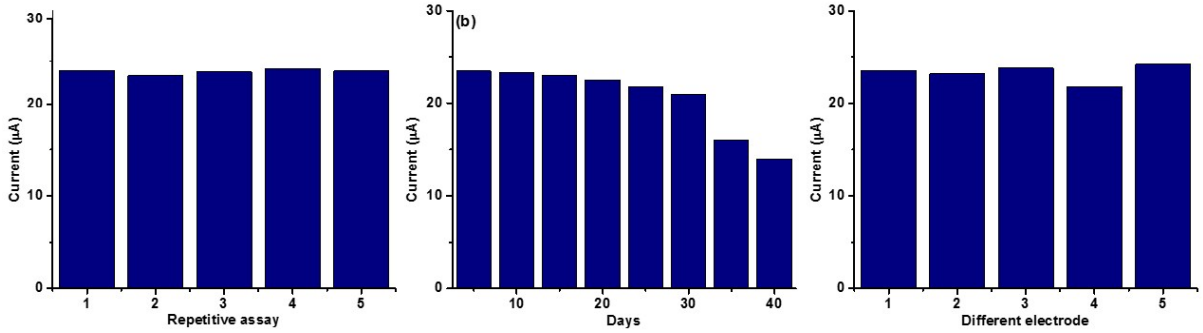

Fig. SI 3. Typical analysis for (a) repeatability, (b) stability, and (c) reproducibility of MIP-rGO/GCE. Experimental conditions: 0.1 mol L^{-1} PBS (pH 7.2), scan rate:100 mV/s, and 6-TG concentration: 0.5 μM, accumulation time: 2 min.

Table SI 1. Elemental Compositions of graphene oxide (GO), and reduced graphene oxide (rGO)

Samples	C	O	C/O
GO	68.24	31.76	2.1486
rGO	95.98	4.02	23.8756