Electronic Supplementary Material (ESI) for Analyst.
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Supplementary Information

Electrochemical sensors based on molecularly imprinted polymer on Fe_3O_4/graphene modified by gold nanoparticles for highly selective and sensitive detection of trace ractopamine in water

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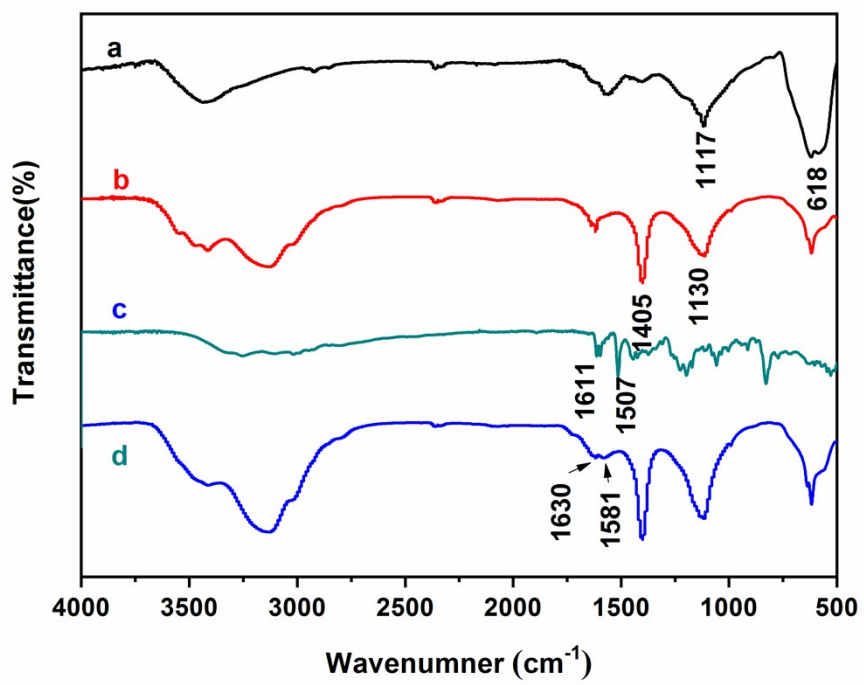

Fig. S1. FT-IR spectra of (a) Au@Fe_3O_4@RGO, (b) Au@Fe_3O_4@RGO-RAFT, (c) Au@Fe_3O_4@RGO-MIP with RAC and (d) Au@Fe_3O_4@RGO-MIP without RAC.

Note: In (a) the sharp peak at 1117 cm^{-1} and 618 cm^{-1} were attributed to the Au-Au and Fe-O stretching vibration, respectively. The band at about 1130 cm^{-1} are associated with the -C=S vibration, indicating that polymer is formed. For Au@Fe_3O_4@RGO-MIP with RAC, the bands at about 1611 cm^{-1}and1507 cm-1 appear, which is assigned to benzene vibration (c). After removal of RAC, these adsorption peaks disappear (d), indicating that RAC is successfully eluted.

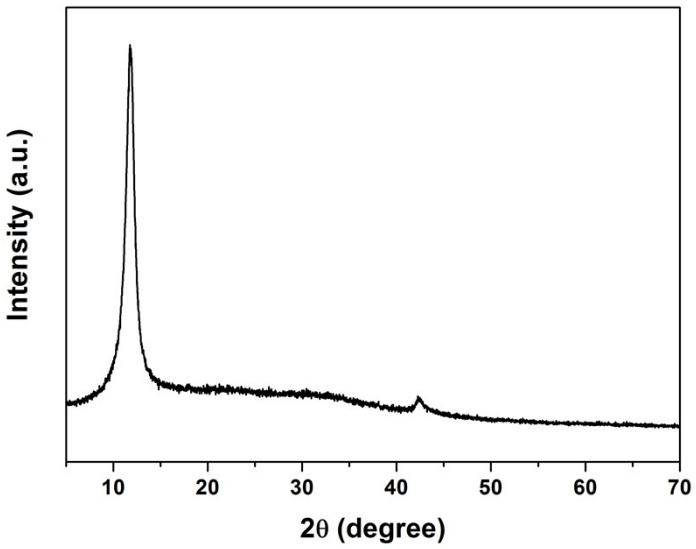

Fig. S2. XRD pattern of RGO.

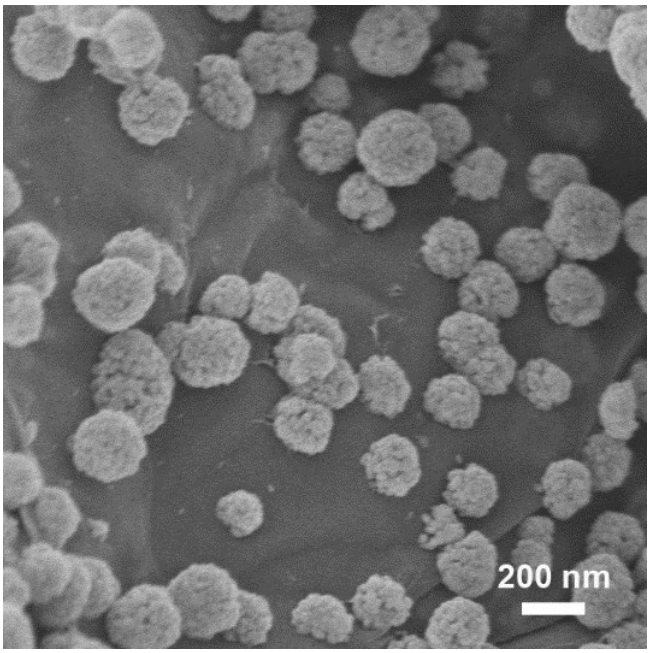

Fig. S3. SEM images of Fe_3O_4@RGO.

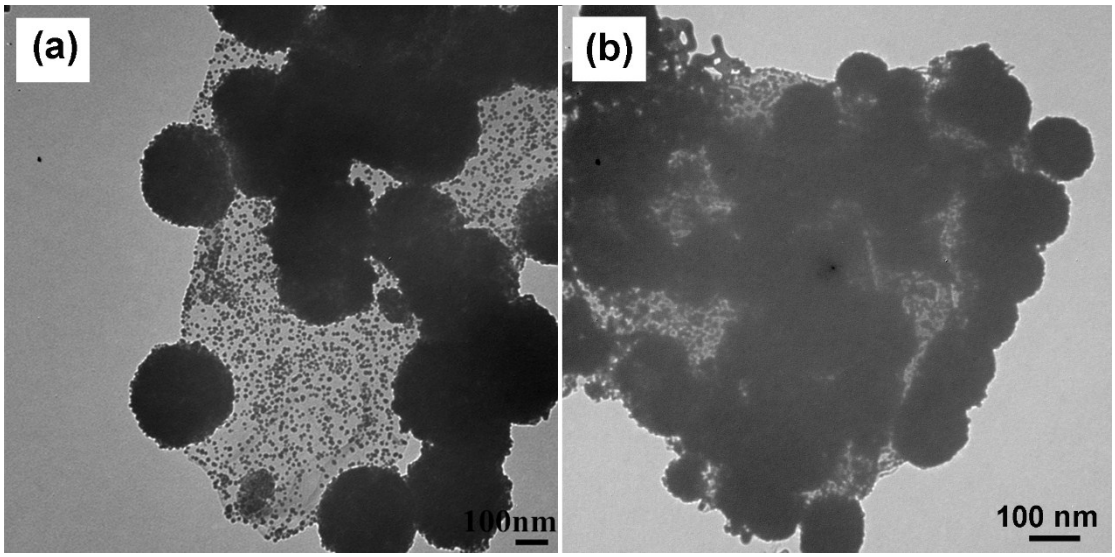

Fig. S4. TEM images of (a) Au@Fe_3O_4@RGO and (b) Au@Fe_3O_4@RGO-MIPs.

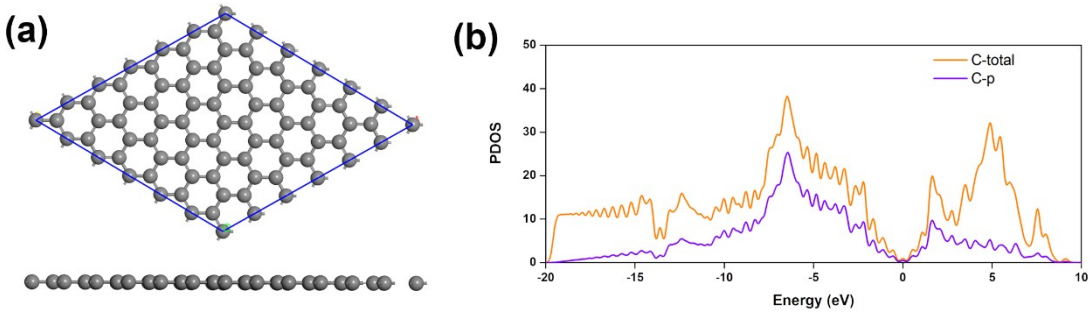

Fig. S5. Optimized structure (a) and PDOS curves (b) of clean graphene.

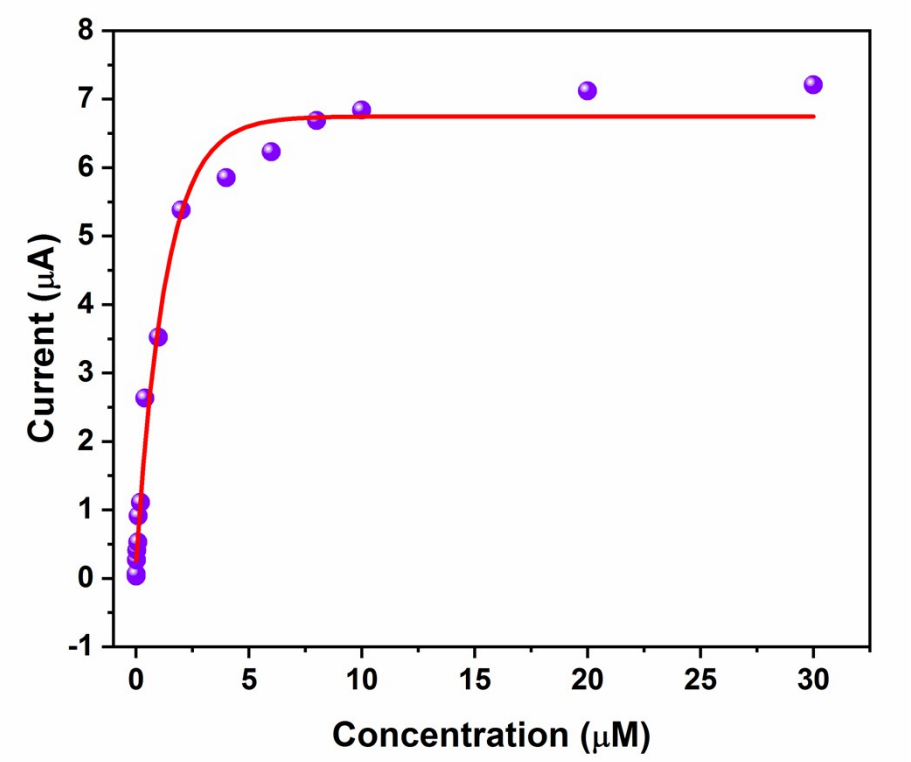

Fig. S6. Response currents of Au@Fe_3O_4@RGO-MIPs sensors fabricated by FRP method in various concentrations of RAC in water ranging from 0.002 to 30 μM.