Electronic Supplementary Information

Synergistic pH effect for reversible shuttling aptamer-based biosensors between graphene oxide and target molecules

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Sensor selectivity test. To ensure that the observed fluorescence increase upon addition of Hg^{2+} or adenosine was indeed due to aptamer binding and desorption, we also tested the sensor response under the same buffer conditions as described in the paper with competing analytes. As shown in Figure S1A, at 1.5 μM metal concentration, besides Hg^{2+} only Ag^{+} showed some fluorescence enhancement but not other metal ions (Mn^{2+}, Mg^{2+}, Pb^{2+}, Ca^{2+}, Zn^{2+}, Co^{2+}, Cu^{2+}, Fe^{3+}). Similarly, for the adenosine sensor, cytidine showed no fluorescence increase (Figure S1B). Therefore, the observed fluorescence increase upon Hg^{2+} or adenosine addition in this work was due to aptamer binding instead of artefacts.

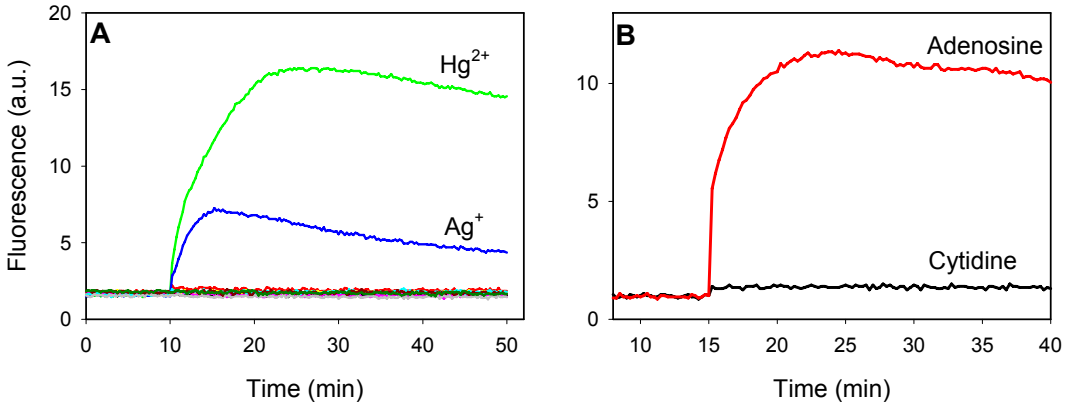

Figure S1. Response of the Hg^{2+} sensor (A) and adenosine sensor (B) to various analytes. The buffer conditions were identical to those described in the paper for the respective sensors.