Electronic supplementary information

Graphene oxide enhanced specificity at aptamer and its application to multiplexed enzymatic activity sensing

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**Fig. S1** The fluorescence intensity of P (40 nM) without (a) and with (b) AD in the presence of 20 µg/mL GO as a function of time.

**Fig. S2** Relative fluorescence intensity $F/F_0$ versus concentration of GO. $F_0$ and F are the fluorescence intensity at 520 nm without and with ATP or its analogues. $[P] = 40$ nM; $[ATP] = [ADP] = [AMP] = [AD] = 500$ µM.
Fig. S3 (A) Strategy based on structure-switching for ATP detection. (B-E) Fluorescence spectra of the detection system in the presence of different concentrations of ATP, ADP, AMP and AD, respectively.
**Fig. S4.** Fluorescence spectra of the assay system under different conditions: (a) P; (b) P + GO; (c) P + GO + AMP; (d) P + GO + AD; (e) P + GO + AMP + ALP. [P] = 40 nM, [GO] = 40 µg/mL, [AMP] = [AD] = 500 µM, [ALP] = 45 U/L.

**Fig. S5** The relatively fluorescence intensity of P/GO complex after incubation with different concentrations of inactive ALP (F₀ and F are the fluorescence intensities in the absence and presence of ALP, respectively). [P] = 40 nM, [GO] = 40 µg/mL, [AMP] = 500 µM.
**Fig. S6** Effect of GO concentration on the fluorescence intensity of P in 2% human serum with AMP or AD. Inset: Relative fluorescence intensity under different concentrations of GO in 2% human serum (where $F_{AD}$ and $F_{AMP}$ are the fluorescence intensity of the detection system in the presence of AD or AMP).
Fig. S7 (A) Fluorescence spectra of P/GO complex in the presence of different concentrations of ALP in 2 % human serum. (B) Linear relationship between the fluorescence intensity and ALP concentrations in 2 % human serum.