

Supporting Information

**Detection of Mercury Ion with High Sensitivity and Selectivity Using DNA/Graphene Oxide Hybrid Immobilized on Glass Slides**

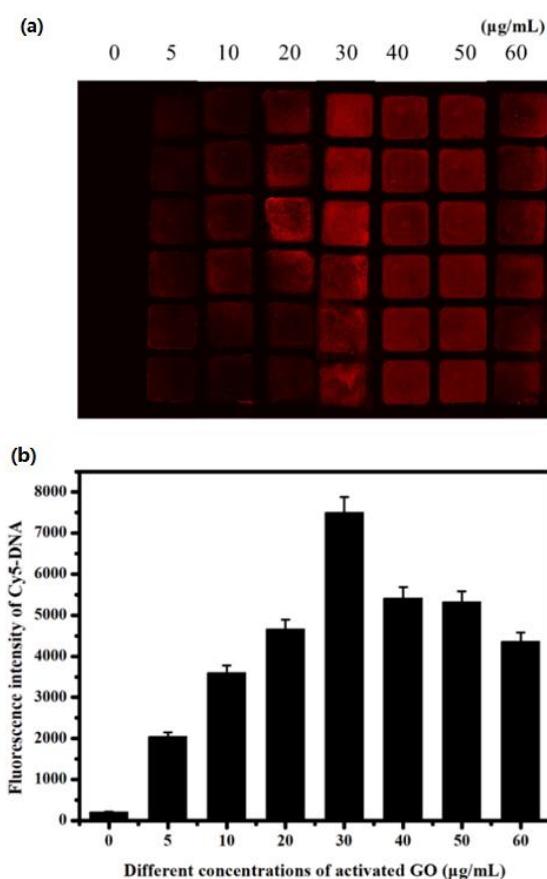
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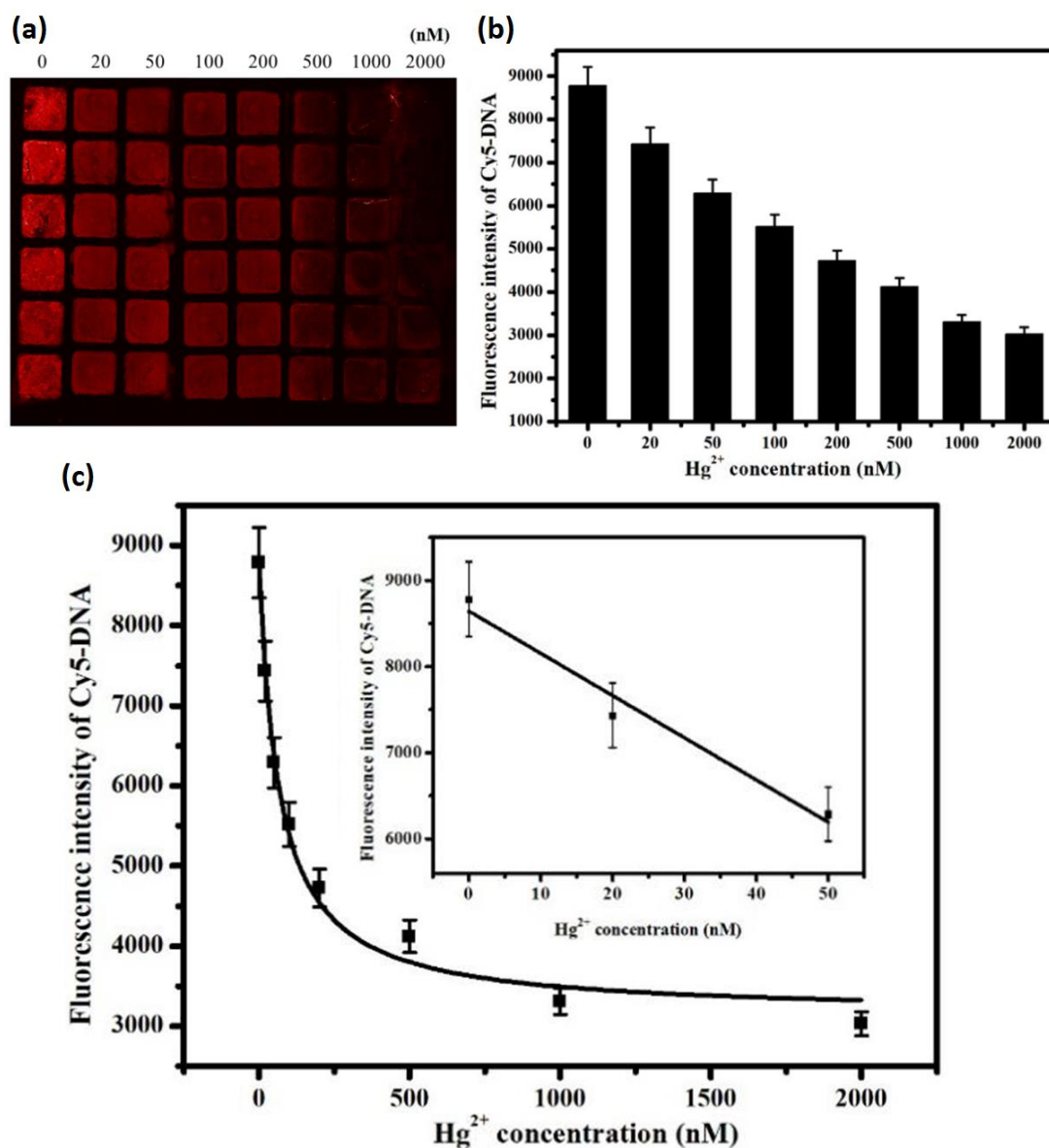
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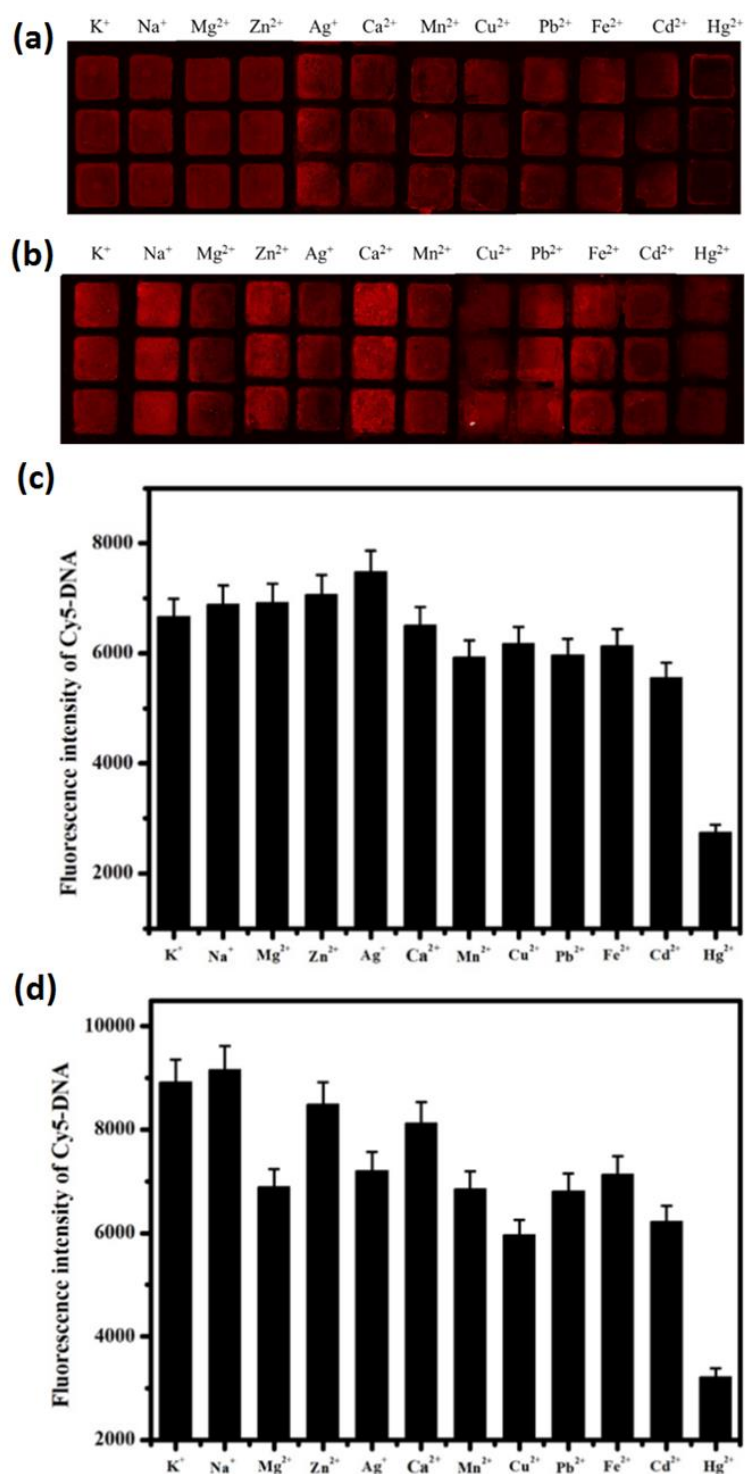
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**Figure S1** Optimization of activated GO concentration based on sensors containing DNA sequences I hybrid with two PS cutting sites. (a) Scanning image of the chip microarray after optimization of activated GO concentration; (b) The fluorescence intensity of the Cy 5-DNA in the presence of different concentrations of activated GO.

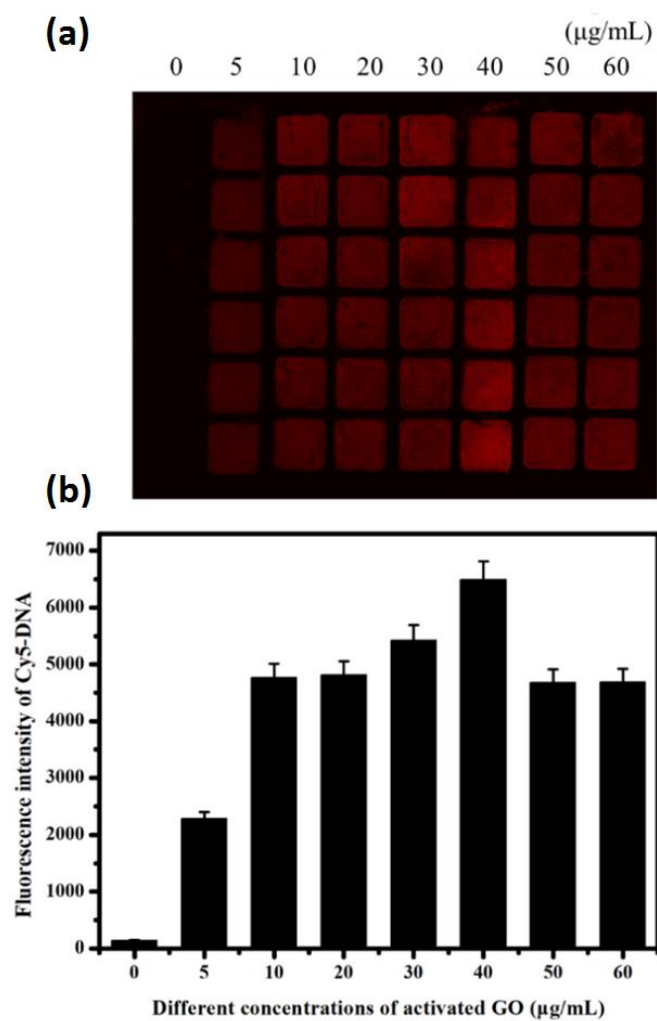


**Figure S2** Sensitivity analysis for  $\text{Hg}^{2+}$  detection based on sensors containing DNA sequences I hybrid with two PS cutting sites. **(a)** Scanning image of the chip array after adding different concentrations of  $\text{Hg}^{2+}$ ; **(b)** The fluorescence intensity of the Cy 5-DNA in the presence of different concentrations of  $\text{Hg}^{2+}$ ; **(c)** Plotted data extracted from (b). The inset shown in (c) represents the linear working curve with the average of 3 experiments at low mercury ion concentrations.

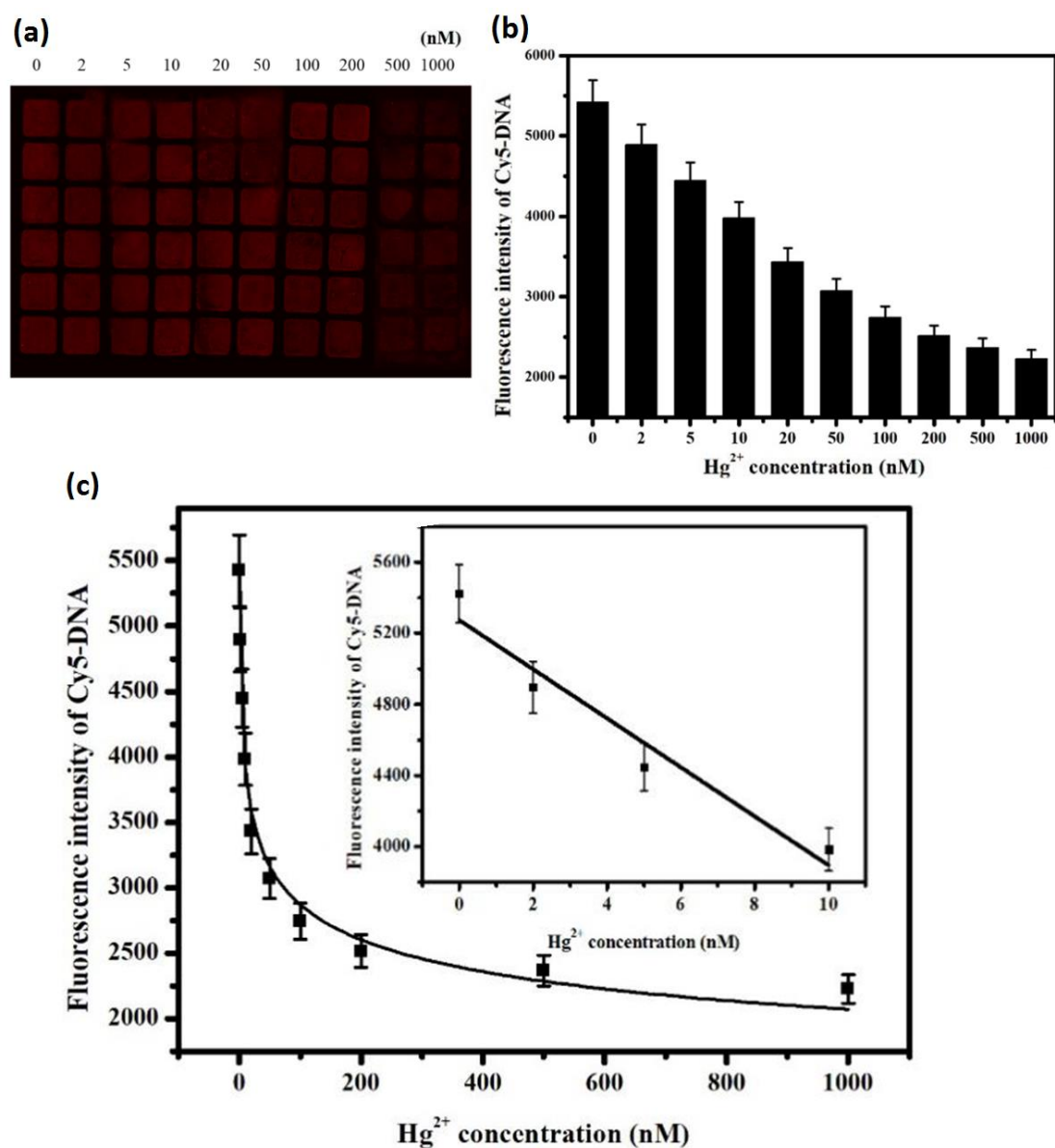


**Figure S3** Selectivity analysis for  $\text{Hg}^{2+}$  detection based on sensors containing DNA sequences I. Scanning images of the chip microarrays after adding various metal ions: (a) hybrid with one PS cutting site; (b) hybrid with two PS cutting sites. The fluorescence intensity of the Cy 5-DNA in the presence of different metal ions: (c) hybrid with one PS cutting site; (d) hybrid with two PS cutting sites. Each concentration of the metal ion was fixed at  $1\mu\text{M}$ .





**Figure S4** Optimization of activated GO concentration based on sensors containing DNA sequences II hybrid with two PS cutting sites. **(a)** Scanning image of the chip microarray after optimization of activated GO concentration; **(b)** The fluorescence intensity of the Cy 5-DNA in the presence of different concentrations of activated GO.



**Figure S5** Sensitivity analysis for  $\text{Hg}^{2+}$  detection based on sensors containing DNA sequences II hybrid with two PS cutting sites. (a) Scanning image of the chip array after adding different concentrations of  $\text{Hg}^{2+}$ ; (b) The fluorescence intensity of the Cy 5-DNA in the presence of different concentrations of  $\text{Hg}^{2+}$ ; (c) Plotted data extracted from (b). The inset shown in (c) represents the linear working curve with the average of repeated 3 experiments at low mercury ion concentrations.