

**Supporting Information**

**Mussel inspired redox surface for one step visual and  
colorimetric detection of Hg<sup>2+</sup> during the formation of  
Ag@DOPA@Hg nanoparticles**

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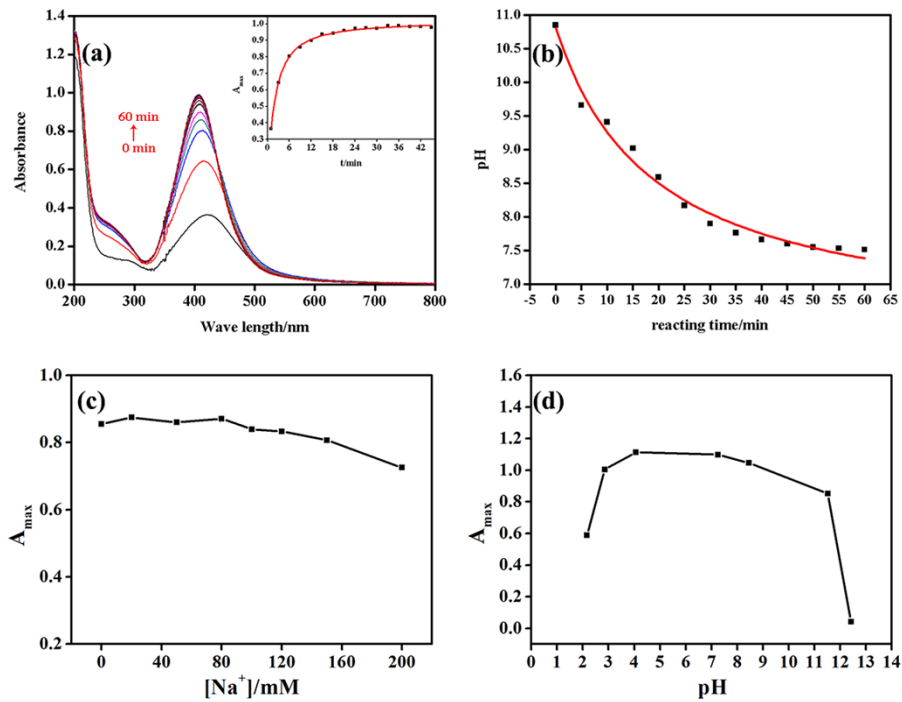
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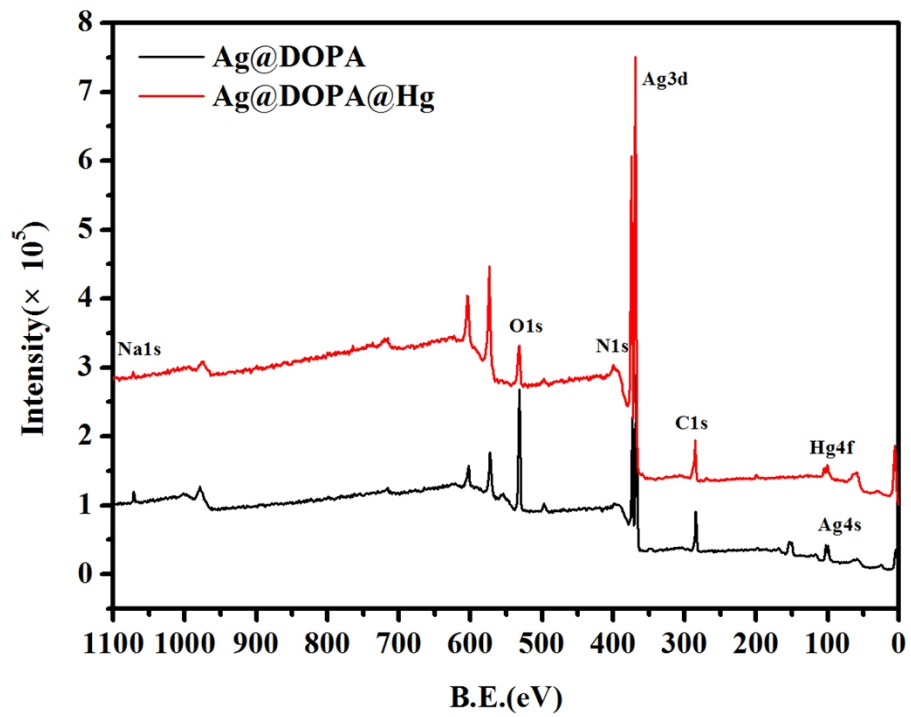
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**Figure S1.** The absorption spectrum of Ag@DOPA with different reacting time (a), inset graph of  $A_{\max}$  describes the plot of  $A_{\max}$  against reacting time; The pH of the reacting solution against reacting time (b); the stability of Ag@DOPA: plot of  $A_{\max}$  of Ag@DOPA against different concentration of  $\text{Na}^+$  (c), pH (d).



**Figure S2.** XPS survey spectrum of Ag@DOPA and Ag@DOPA@Hg NPs. The concentration of Hg<sup>2+</sup> was 5 $\mu$ M.

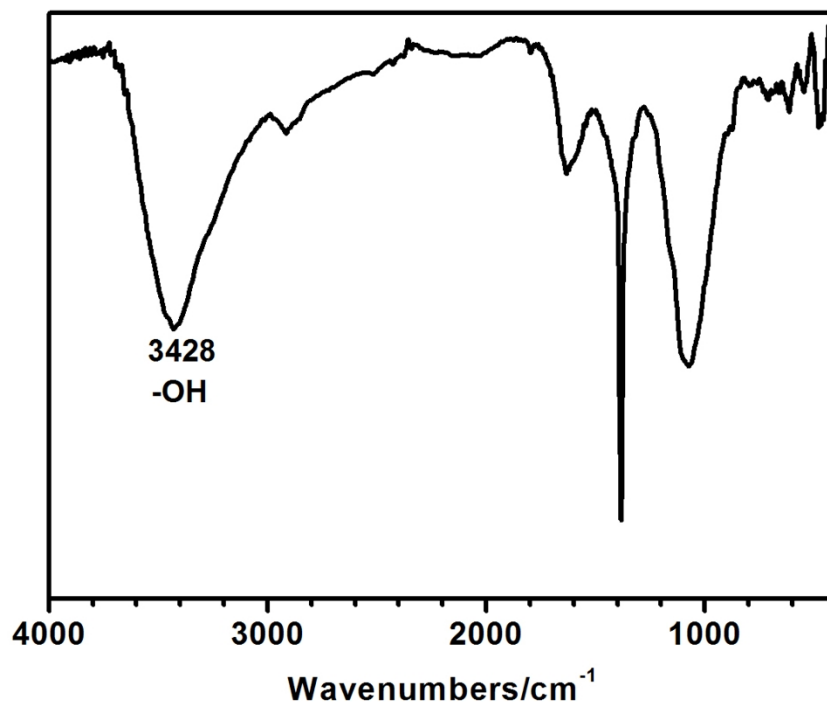


Figure S3. FT-IR spectrum of Ag@DOPA

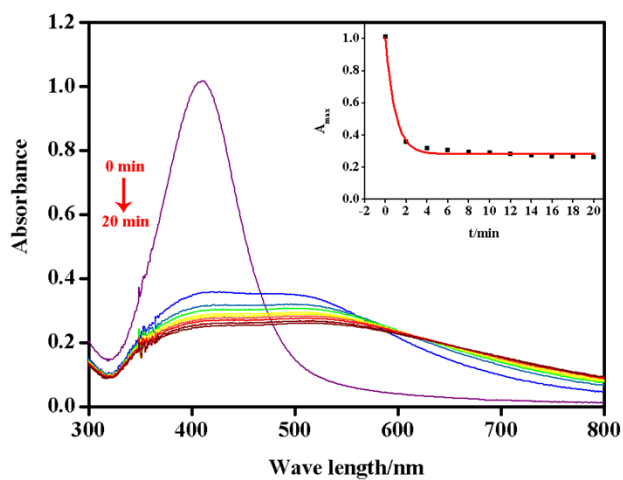


Figure S4. The absorption spectrum of Ag@DOPA in the presence of 5 μM Hg<sup>2+</sup> with different reacting time, inset graph describes the plot of A<sub>max</sub> against reacting time.