Magnetic microspheres with polydopamine encapsulated ultra-small noble metal nanocrystals as mimetic enzyme toward colorimetric detection of H₂O₂ and glucose

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Table S1 the kinetic parameters of Fe$_3$O$_4$@RF-Pt@PDA.

<table>
<thead>
<tr>
<th>Catalyst</th>
<th>Substance</th>
<th>$K_m$ (mM)</th>
<th>$V_{max}$ ($10^{-8}$ M/s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fe$_3$O$_4$@RF-Pt@PDA</td>
<td>TMB</td>
<td>0.187</td>
<td>23.84</td>
</tr>
<tr>
<td></td>
<td>H$_2$O$_2$</td>
<td>0.289</td>
<td>13.56</td>
</tr>
</tbody>
</table>

Fig. S1 High magnification TEM image of Fe$_3$O$_4$@RF-Pt (the inset is partial enlargement of TEM image which marked in rectangle area)

Fig. S2 TEM image of Fe$_3$O$_4$@RF-Pt with different magnification
Fig. S3 TEM images of Fe₃O₄@RF-Pt prepared with different concentration of PtCl₆²⁻: 9.6 μM (a), 19.2 μM (b), 28.8 μM (c), 38.4 μM (d).

Fig. S4 the adsorption spectra of TMB oxidation product catalyzed by Fe₃O₄@RF-Pt@PDA that prepared with different concentration of PtCl₆²⁻: 9.6 μM (a), 19.2 μM (b), 28.8 μM (c), 38.4 μM (d).
Fig. S5 HAADF STEM image of Fe₃O₄@RF-Au@PDA (a) and corresponding elemental mapping images (b-f)

Fig. S6 HAADF STEM image of Fe₃O₄@RF-PtPd@PDA (a) and corresponding elemental mapping images (b-f)
Fig. S7 absorbance at 652 nm for different samples after incubation with GOx 1: fresh grape juice; 2: grape beverage; 3: fresh litchi juice; 4: freshly prepared 0.2 M glucose solution.