Supporting Information
For
Colorimetric Detection of Fe$^{3+}$ Ions Using Pyrophosphate Functionalized Gold Nanoparticles

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3. **Figure S3.** The calibration curve for the detection of Fe$^{3+}$ by P$_2$O$_7^{4-}$-AuNPs in water (pH 7.0, 10 mM Hepes).
Figure S1. IR spectrum of P$_2$O$_7^{4-}$-AuNPs.

Figure S2. The calibration curve of P$_2$O$_7^{4-}$-AuNPs in water (pH 7.0, 10 mM Hepes buffer). The monitored wavelength was 750 nm.

\[ Y = A + S \times X \]

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
<th>Error</th>
<th>R</th>
<th>SD</th>
<th>N</th>
<th>P</th>
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<tbody>
<tr>
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<td>-0.08612</td>
<td>0.01716</td>
<td>0.99168</td>
<td>0.01387</td>
<td>8</td>
<td>&lt;0.0001</td>
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<tr>
<td>S</td>
<td>7409.81</td>
<td>392.74215</td>
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</tr>
</tbody>
</table>

Detection limit (DL) = K × SD / S, K = 3, SD = standard deviation, S= slope
DL = 3 × 0.01387 / 7409.81 = 5.6 × 10^{-6} M
Figure S3. The calibration curve for the detection of Fe$^{3+}$ by P$_2$O$_7^{4-}$-AuNPs. The ratio $(\text{Abs}_{750\text{nm}}/\text{Abs}_{535\text{nm}})$ was plotted against different concentrations of Fe$^{3+}$ ions.