Supporting Information

Modulating in situ fluorogenic reaction for the label-free ratiometric detection of biothiols

Haiqing Zhang,a,b Yan Xiao,*a Xiuhua Zhang,*a and Shengfu Wanga

aHubei Collaborative Innovation Center for Advanced Organic Chemical Materials, Ministry of Education Key Laboratory for the Synthesis and Application of Organic Functional Molecules & College of Chemistry and Chemical Engineering, Hubei University, Wuhan 430062, PR China

bDepartment of Chemistry, Key Laboratory of Hubei Province for Coal Conversion and New Carbon Materials, School of Chemistry and Chemical Engineering, Wuhan University of Science and Technology, Wuhan 430081, PR China

*Corresponding Authors:

E-mail: xiaoyan@hubu.edu.cn; zhangxh@hubu.edu.cn
Tel.: +86-27-50865309. Fax: +86-27-88663043
Fig. S1. ESI-Mass spectra of the resultant solution of (A) dopamine, (B) dopamine and resorcinol and (C) dopamine and Cys in alkaline PB, respectively.
**Fig. S2.** UV–vis absorption spectrum (black line) of azamonardine and fluorescence excitation spectrum (red line) of MPA-CdTe QDs.

**Fig. S3.** The fluorescence intensity of MPA-CdTe QDs in response to different concentrations of Cys (0-40 µM).

**Fig. S4.** XPS spectra of Cd 3d (A) and Te 3d (B) for the MPA-CdTe QDs.
**Fig. S5.** Response of the proposed method in the presence of Cys (10 µM) in different pH PB solution ($I_{460}^0 / I_{638}^0$ was the fluorescence intensity ratio of azamonardine to MPA-CdTe QDs in the absent of Cys while $I_{460}^c / I_{638}^c$ was the fluorescence intensity ratio of azamonardine to MPA-CdTe QDs in the present of Cys).  

**Fig. S6.** The fluorescence intensity ratio ($I_{460} / I_{638}$) as a function of incubation time with different concentrations of Cys (6 µM, 10 µM, 12 µM) in PB solution (pH 11, 20 mM).

**Table S1.** Comparison of different methods for Cys determination.

<table>
<thead>
<tr>
<th>Method</th>
<th>Linear range (µM)</th>
<th>Detection limit (µM)</th>
<th>Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td>ECL</td>
<td>1.3-35</td>
<td>0.87</td>
<td>1</td>
</tr>
<tr>
<td>PEC</td>
<td>100-800, 60-500</td>
<td>12.8, 12.6</td>
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<td>Amperometry</td>
<td>1.3–720.8</td>
<td>0.8</td>
<td>3</td>
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<tr>
<td>Fluorescence</td>
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<td>0.1</td>
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</tr>
<tr>
<td>Fluorescence</td>
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<tr>
<td>Luminescence</td>
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<td>6</td>
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<tr>
<td>Fluorescence</td>
<td>30-200</td>
<td>1.4</td>
<td>7</td>
</tr>
</tbody>
</table>
Fluorescence & 2-12 & 0.6 & This work \\

Reference