## Nanomolar detection of Hcy, GSH and Cys in aqueous solution, test paper and living cells

Xingjiang Liu,<sup>‡</sup><sup>a,b</sup> Wenying Zhang,<sup>‡</sup><sup>a</sup> Chunxiao Li,<sup>a</sup> Wan Zhou,<sup>a</sup>

Zhanxian Li,\*<sup>*a*</sup> Mingming Yu\*<sup>*a*</sup> and Liuhe Wei<sup>*a*</sup>

<sup>a</sup> College of Chemistry and Molecular Engineering, Zhengzhou University,

Zhengzhou 450001, China. E-mail: lizx@zzu.edu.cn; yumm@zzu.edu.cn; Fax/Tel:

+86 371 67781205

<sup>b</sup> College of Chemistry and Chemical Engineering, Central South University,

Changsha, Hunan 410083, China



**Fig. S1** Emission spectroscopy of 1 ( $5.0 \times 10^{-6}$  M,  $V_{\text{HEPES buffer}}$ :  $V_{\text{water}} = 7:3$ , pH = 7.4) upon addition of Hcy with excitation at 380 nm.



**Fig. S2** Emission spectroscopy of 1 ( $5.0 \times 10^{-6}$  M,  $V_{\text{HEPES buffer}}$ :  $V_{\text{water}} = 7:3$ , pH = 7.4) upon addition of GSH with excitation at 380 nm.



**Fig. S3** Emission intensity of compound **1** at 521 nm (black dot) as a function of addition of Hcy water solution; the linearity of peak intensity with respect to Hcy concentrations (inset).



**Fig. S4** Emission intensity of compound 1 at 521 nm (black dot) as a function of addition of GSH water solution; the linearity of peak intensity with respect to GSH concentrations (inset).



Fig. S5 TOF mass spectra of 1.



Fig. S6 TOF mass spectra of 2.



Fig. S7 TOF mass spectra of the product from the reaction of 1 with Cys.



**Fig. S8** Images of test papers for the selectivity of Cys upon addition of 20 mM of various amino acids (From left to right, the amino acids used were Asp, Ala, Val, Phe, His, Leu, Ser, IIe, Trp, Lys, Arg, Pro, Gly, Met, Tyr, Glu, Thr, Hcy, GSH, Cys.) in PBS solutions of 1 ( $5.0 \times 10^{-5}$  M,  $V_{\text{HEPES buffer}}$  :  $V_{\text{water}} = 7:3$ , pH = 7.4) under a UV lamp (365 nm).