

Supporting Information for

Selective Determination of Glutathione Using a Highly Emissive Fluorescent Probe Based on a Pyrrolidine-Fused Chlorin

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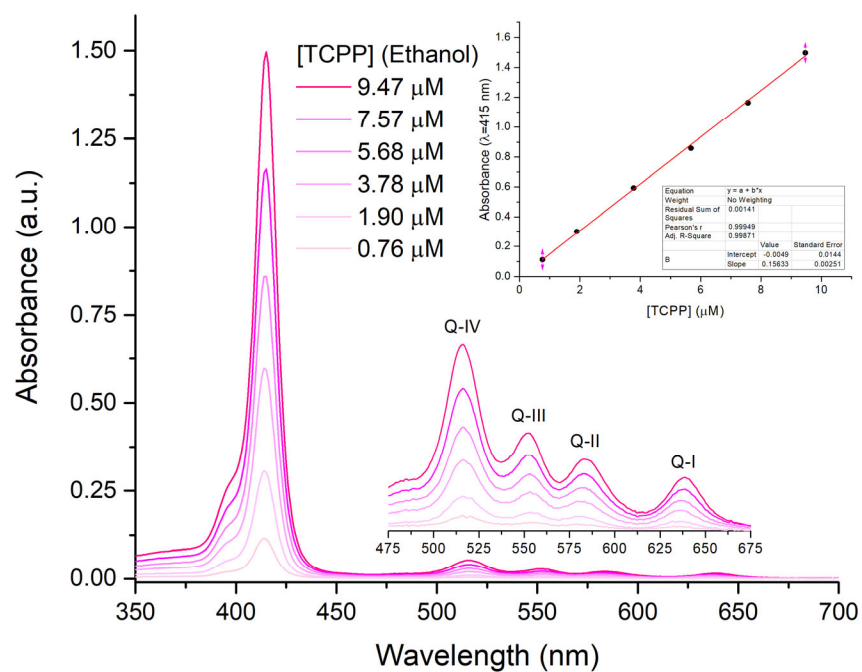


Figure S1. Absorption spectra of a methanol solution of *meso*-tetrakis(4-carboxyphenyl)porphyrin (TCPP) at different concentrations. Inset: linear fitting of the maximum absorbance vs. [TCPP].

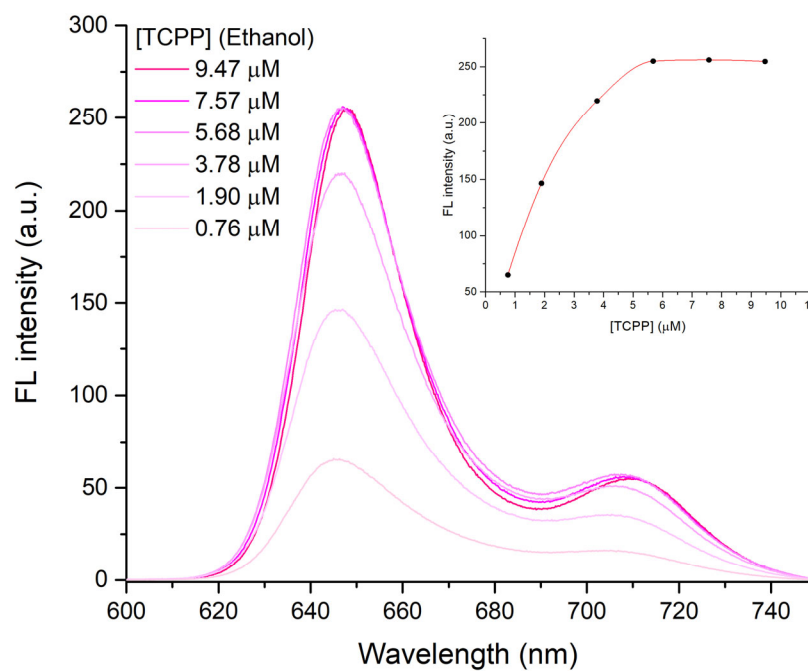


Figure S2. Fluorescence emission spectra ($\lambda_{\text{ex}} = 415$ nm) of a methanol solution of *meso*-tetrakis(4-carboxyphenyl)porphyrin (TCPP) at different concentrations. Inset: FL emission intensity vs. [TCPP].

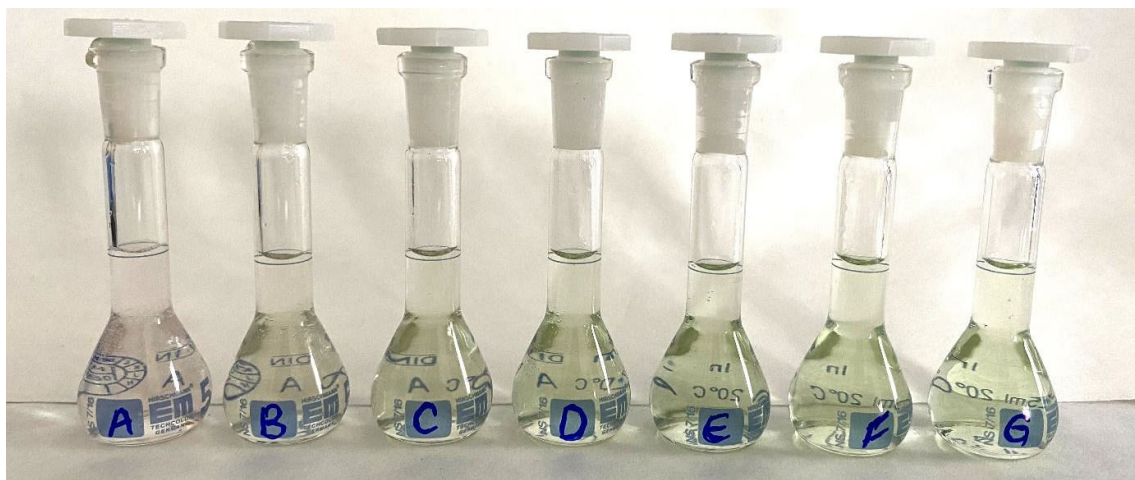


Figure S3. TCPC ethanolic solutions with different concentrations of Hg^{2+} (from A to G: 0, 6.11, 12.23, 24.43, 36.69, 48.91, 61.14 μM). See the main text for further details.

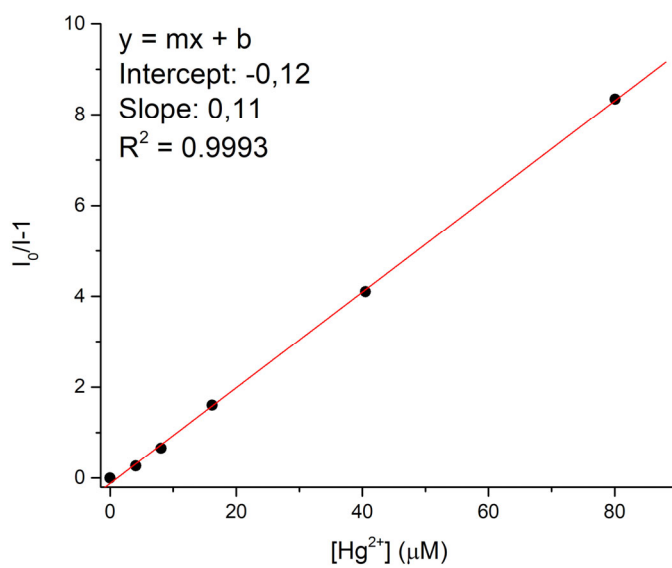


Figure S4. TCPC ($[\text{TCPC}] = 6.15 \mu\text{M}$) fluorescence dependence with Hg^{2+} concentration (black dots) and its Stern-Volmer equation linear fitting (red line), $\lambda_{\text{ex}} = 415 \text{ nm}$, $\lambda_{\text{em}} = 650 \text{ nm}$.

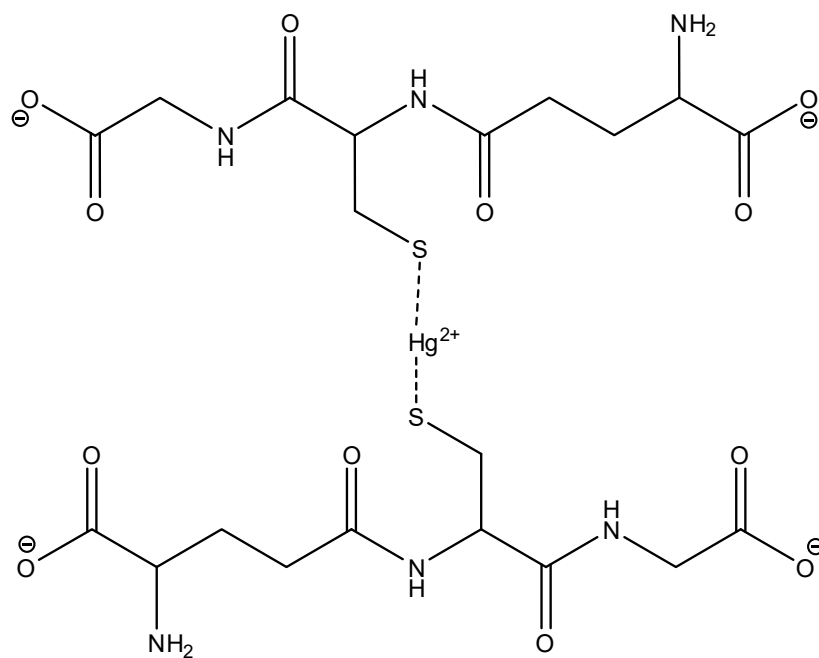


Figure S5. Schematic representation of the complex $[\text{Hg}(\text{GSH})_2]^{4-}$ (see reference 69 in main article).

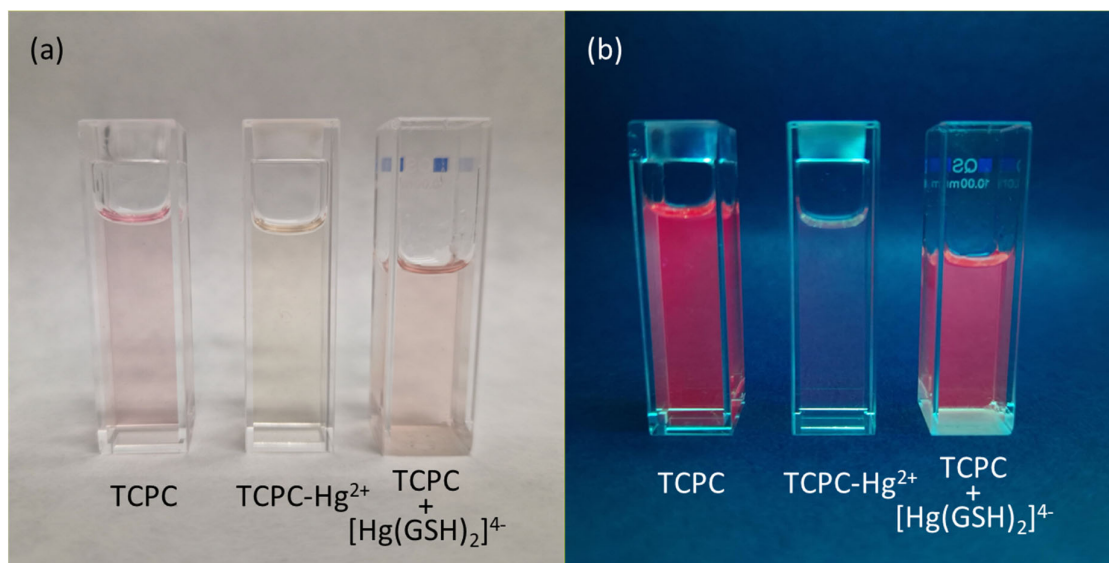


Figure S6: Photographs of cuvettes containing a TCPC aqueous solution (left), its corresponding TCPC- Hg^{2+} complex (center) and after addition of an excess of GSH (right) under visible (a) and UV (b) light.

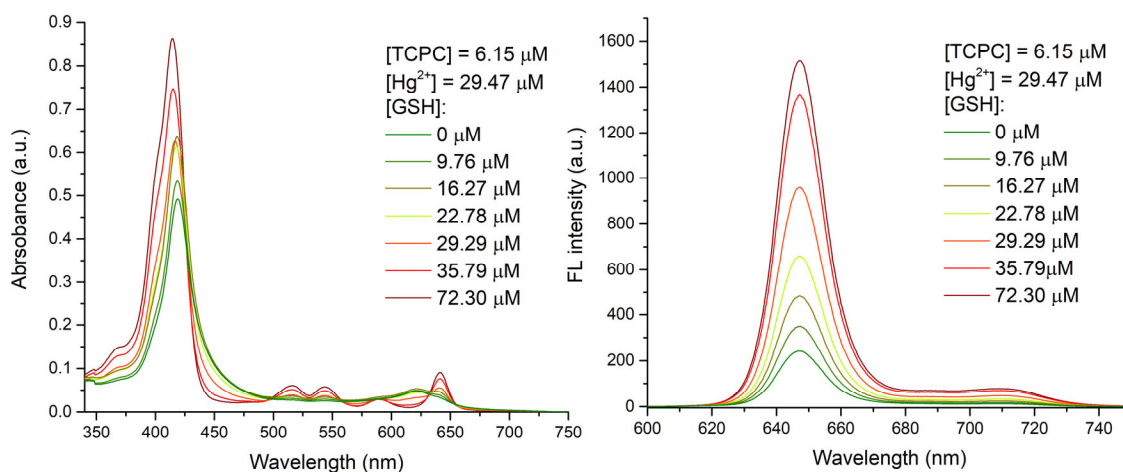


Figure S7. Absorbance (left) and fluorescence ($\lambda_{\text{ex}} = 415 \text{ nm}$) (right) spectra of TCPC-Hg²⁺ complex aqueous solutions (ratio 1:2) at pH 7.4 with different concentrations of GSH.

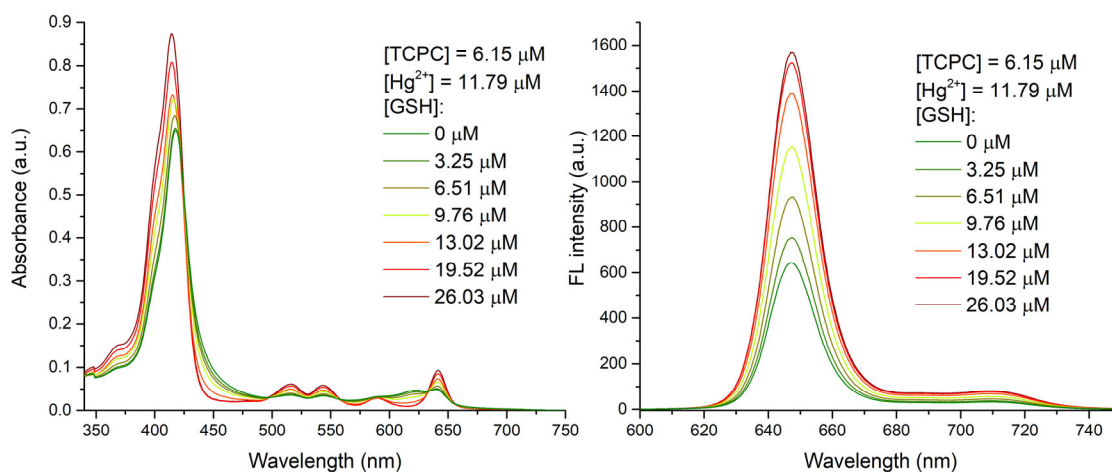


Figure S8. Absorbance (left) and fluorescence ($\lambda_{\text{ex}} = 415 \text{ nm}$) (right) spectra of TCPC-Hg²⁺ complex aqueous solutions (ratio 1:5) at pH 7.4 with different concentrations of GSH.

Table S1. Limit of detection and response rates of various fluorescent sensors toward GSH.

Reference	LOD	Response rate
This study	40 nM	Seconds-order
32	1.35 mM	3-4 minutes
78	1.2 μM	Not reported
80	0.3 μM	Not reported
81	0.89 μM	Not reported
82	2.2 μM	Not reported
83	0.48 μM	Not reported
84	0.96 μM	Not reported
53	16.2 nM	Not reported

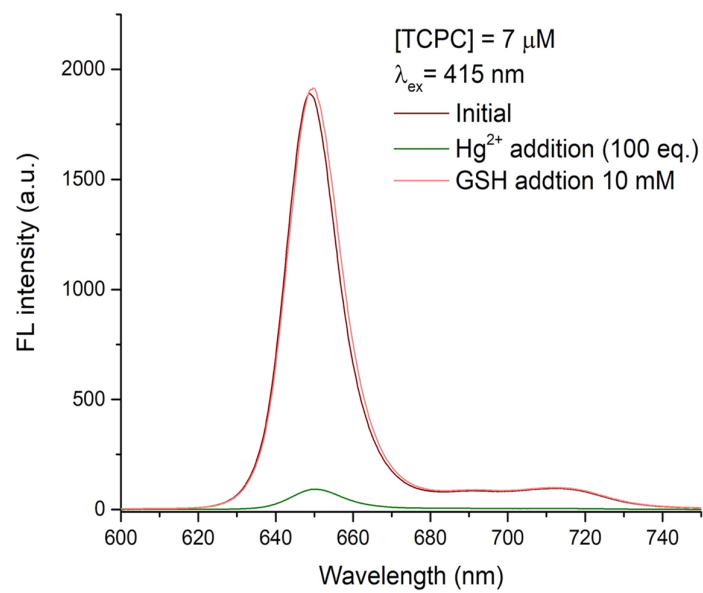


Figure S9. Fluorescence ($\lambda_{\text{ex}} = 415 \text{ nm}$) spectra of aqueous solutions of TCPC, and the TCPC-Hg²⁺ complex (ratio 1:100) before and after addition of 10 mM GSH at pH 7.4.