

## Electronic Supplementary Information

### Microwave-assisted rapid synthesis of luminescent gold nanoclusters for sensing $\text{Hg}^{2+}$ in living cells using fluorescence imaging

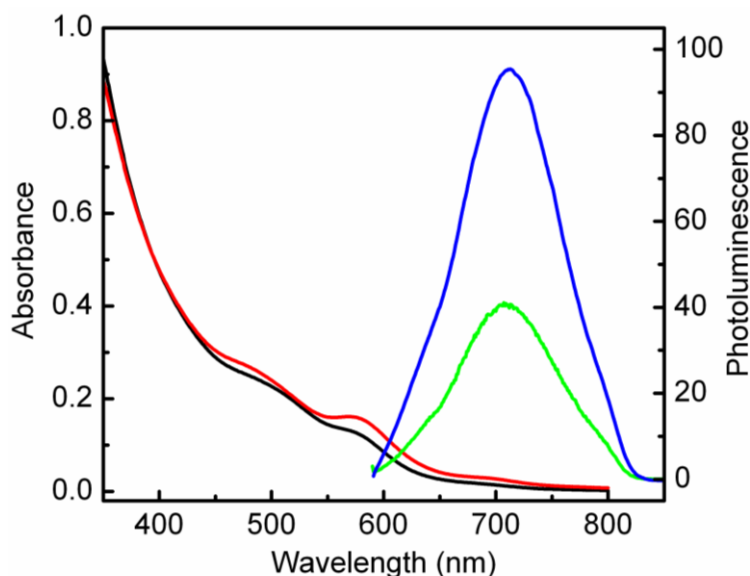
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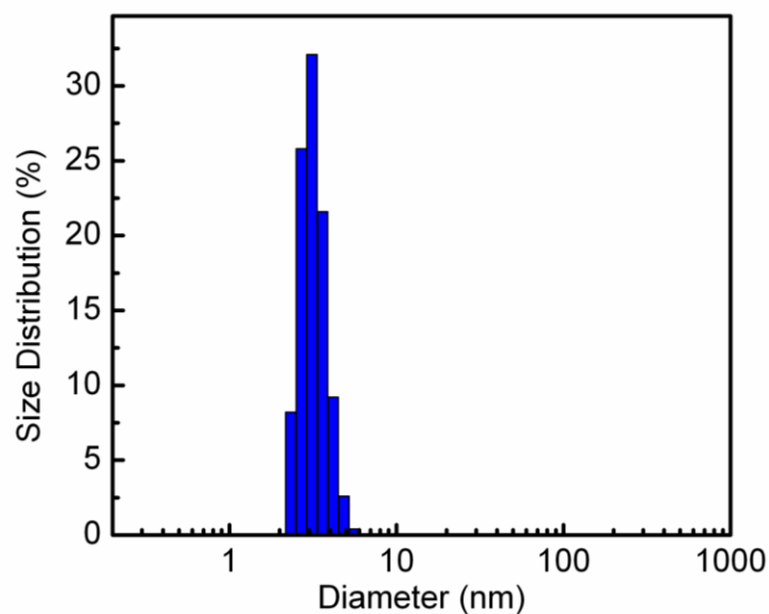
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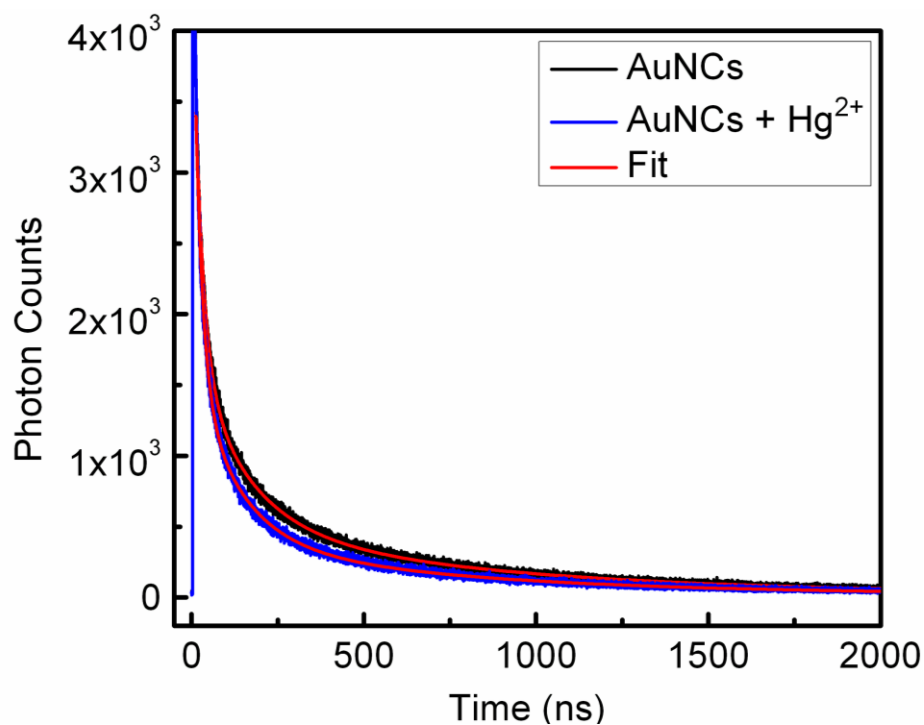


**Fig. S1** Absorption spectra of AuNCs synthesized by normal heating in an oven at 70 °C for 3 h (HT\_AuNCs, black curve) and microwave irradiation at 180 W for 4 min (MW\_AuNCs, red curve). Fluorescence emission spectra of HT\_AuNCs (green curve) and MW\_AuNCs (blue curve) were measured with excitation at 580 nm.

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**Fig. S2** Size distribution of an aqueous solution of DHLA-AuNCs as determined by DLS.



**Fig. S3** Fluorescence decay curves of DHLA-AuNC solutions (10  $\mu\text{g/ml}$ , PBS) in the absence (black) and presence of  $\text{Hg}^{2+}$  (10  $\mu\text{M}$ , blue), and the corresponding fit curves (red) obtained by nonlinear least-squares fits with multi-exponential decay functions.

**Table S1** Parameters of multi-exponential fits to the observed luminescence decay of DHLA-AuNCs in the absence and presence of Hg<sup>2+</sup>.

	$\tau_1$ (ns)	$\alpha_1$ (%)	$\tau_2$ (ns)	$\alpha_2$ (%)	$\tau_3$ (ns)	$\alpha_3$ (%)	$\tau_{av}$ (ns)
AuNCs	25±1	51.8±0.4	148±4	32.7±0.1	752±5	15.4±0.1	533±3
AuNCs + Hg <sup>2+</sup>	22±1	55.9±0.5	130±10	32.3±0.2	701±12	11.8±0.1	464±7