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

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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 μg/ml, PBS) in the absence (black) and presence of Hg^{2+} (10 μM, 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$^{2+}$.

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