Supporting Information

Fluorescence Signal Amplification of Gold Nanocluster with Silver Ions

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Figure S1. Time-resolved emission-decay curves of Au NC (black line) before and after adding Ag⁺ (red line).
Figure S2. TEM images of (A) Au-BSA NCs and (B) Au-BSA NC+Ag⁺. The inset shows the size distribution histogram.

Figure S3. The MALDI-MS spectra of BSA molecule (black line) and Au-BSA NC (red line).

Table S1. Fluorescence decay parameters of Au NC before and after adding Ag⁺.

<table>
<thead>
<tr>
<th></th>
<th>τ₁</th>
<th>A₁</th>
<th>τ₂</th>
<th>A₂</th>
<th>τ₃</th>
<th>A₃</th>
<th>&lt;τ&gt; [ns]</th>
</tr>
</thead>
<tbody>
<tr>
<td>Au-BSA NC</td>
<td>2.99</td>
<td>0.23</td>
<td>0.48</td>
<td>0.70</td>
<td>42.3</td>
<td>0.08</td>
<td>4.29</td>
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<tr>
<td>Au-BSA NC+Ag⁺</td>
<td>3.80</td>
<td>0.23</td>
<td>0.59</td>
<td>0.71</td>
<td>57.6</td>
<td>0.06</td>
<td>4.58</td>
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</tbody>
</table>
Figure S4. The main elements for the Au-BSA NC (A), Au-BSA NC+Ag⁺ (B), Au-BSA NC+Hg²⁺ (C) and Au-BSA NC+Ag⁺+Hg²⁺ (D) after adding Hg²⁺ ions.

Figure S5. Three group parallel experiments of the luminescence amplification of Ag⁺ on the solution system containing Au-BSA NC and Hg²⁺.