Supporting information

One-pot synthesis of tyrosine stabilized fluorescent gold
nanoclusters and its application as turn-on sensor for Al$^{3+}$ ions
and turn-off sensor for Fe$^{3+}$ ions

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Fig. S1. Photographs under room light (1, 2, 3) and 365 nm UV light irradiation (4, 5, 6) of Au NCs before (1, 4) and after addition of Al\textsuperscript{3+} (2, 5) and Fe\textsuperscript{3+} (3, 6).
**Fig. S2.** The fluorescence spectra of the Au NCs, tyrosine solution and HAuCl$_4$ solution.
Fig. S3. Fluorescence lifetimes of the synthesized Au NCs in aqueous solution, data were collected at 498 nm with excitation at 365 nm.
Fig. S4. Optimization of the incubation time for the fluorescence variation of the Au NCs in the presence of 100.0 μM Fe$^{3+}$ ions (pink square) and Al$^{3+}$ ions (blue triangle).
Fig. S5. The fluorescence response of the Au NCs upon addition of 2.5 mM Fe\(^{3+}\) ions.
Fig. S6. The effect of temperature on the fluorescence response of Au NCs when exposed to $\text{Fe}^{3+}$ (a) and $\text{Al}^{3+}$ (b).
Fig. S7. The effect of pH on the fluorescence response of Au NCs when exposed to Fe$^{3+}$ (a) and Al$^{3+}$ (b).
Fig. S8. Fluorescence spectra of the Au NCs solution, in the presence of 500.0 μM Al<sup>3+</sup> or 500.0 μM Fe<sup>3+</sup>, and in the presence of 500.0 μM EDTA and 500.0 μM Al<sup>3+</sup> or Fe<sup>3+</sup>. 