Electronic Supplementary Material (ESI) for Analytical Methods.

Detection of Fe(III) and bio-copper in human serum based on fluorescent AuAg nanoclusters

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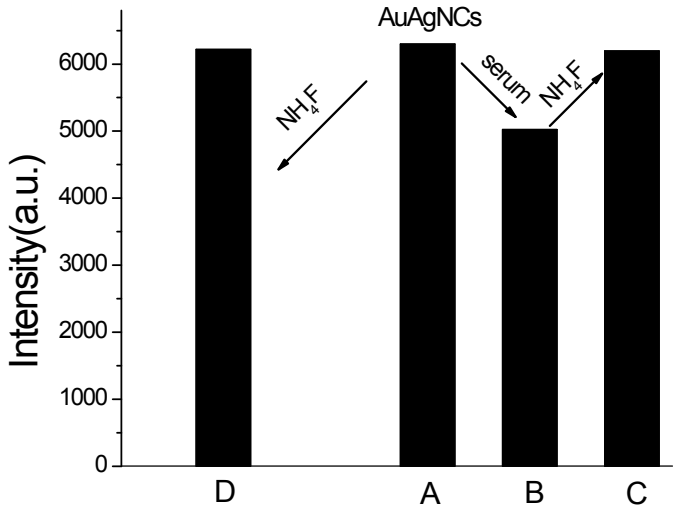

Fig.S1. Variation of fluorescence intensity of AuAg NCs in the different situations. A represents the fluorescence intensity of as-prepared AuAg NCs, the fluorescence intensity decreases with the addition of human serum (B), and then the fluorescence enhances with the addition of NH4F (C), the influence of NH4F on AuAg NCs is negligible (D).

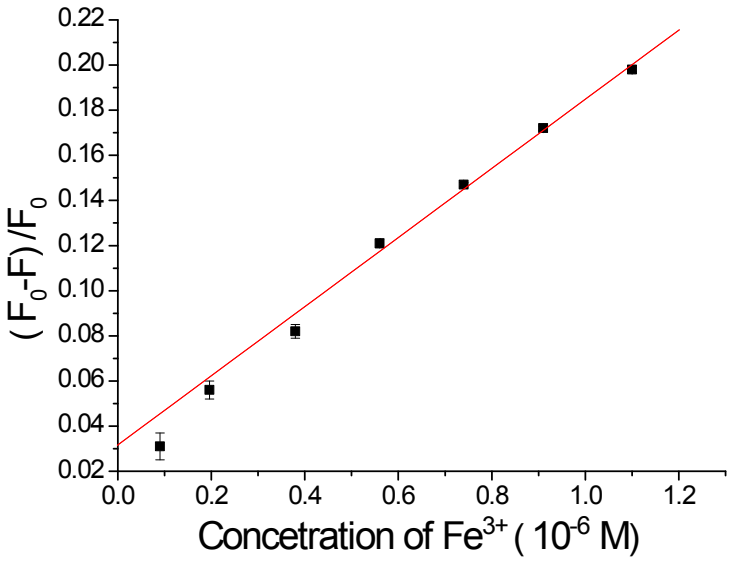

Fig. S2. A linear calibration plot between quenching of fluorescence and concentration of Fe(III). F_0 is the initial intensity of AuAg NCs, F is the fluorescence intensity after the addition of Fe^{3+} ion. The error bars represent the standard deviation of three measurements.

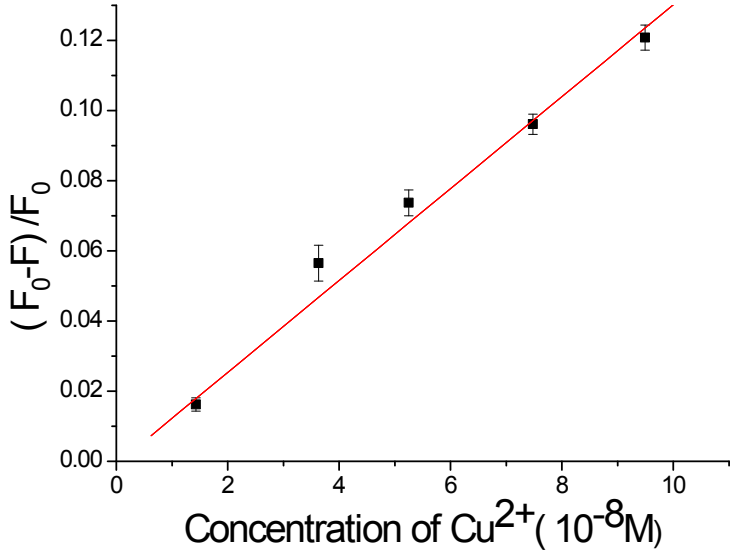

Fig. S3. A linear calibration plot between quenching of fluorescence and concentration of Cu^{2+}. F_0 is the initial intensity of AuAg NCs, F is the fluorescence intensity after the addition of Cu^{2+} ion.

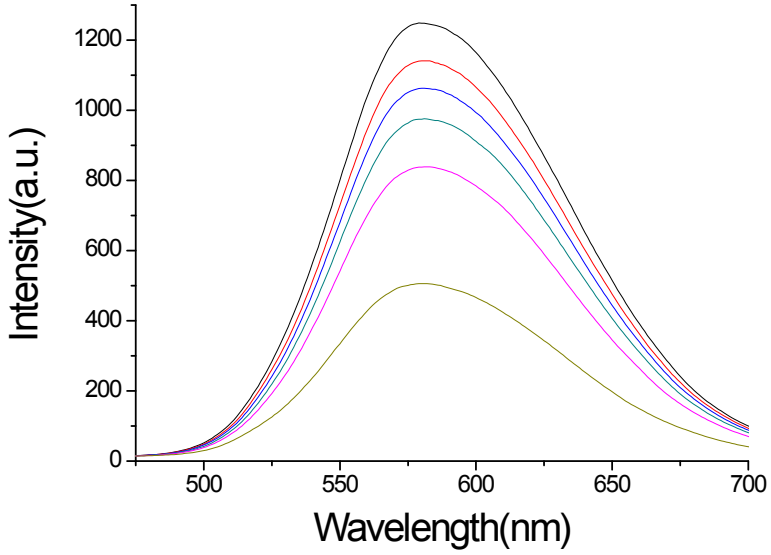

Fig. S4. Fluorescence spectra of AuAg NCs revealing the quenching effects of Cu^{2+} ions at various concentrations (from top to bottom: 0 M, 4.85×10^{-9} M, 4.45×10^{-8} M, 9.09×10^{-7} M, 2.32×10^{-6} M, 3.81×10^{-5} M) in the presence of Fe^{3+} (4.7×10^{-7} M).

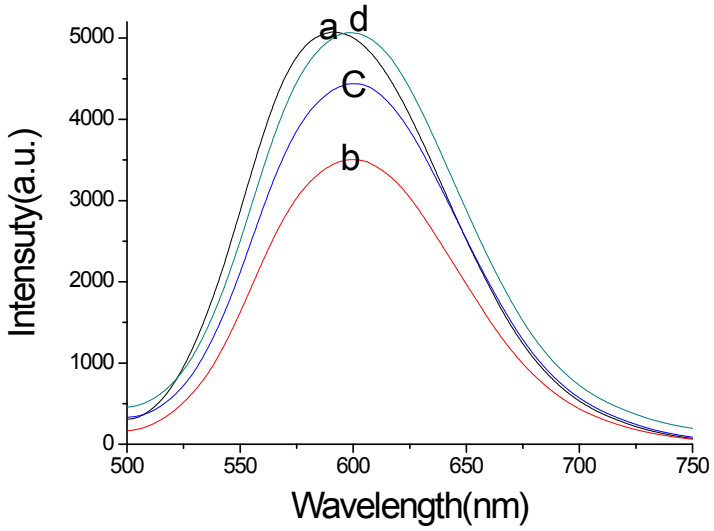

Fig. S5. Fluorescence spectra obtained from the quenching effectiveness of Fe (III) and copper in human serum by AuAg NCs fluorescence sensor. a: the initial AuAg NCs, b: after the addition of human serum to the AuAg NCs solution, c: the enhancement of fluorescence after the addition of NH_4F to the human serum and AuAg NCs system, d: the fluorescence after the introduction of EDTA to the above mixed solution.

Table S1.The measured concentrations of copper in the serum as well as the recovery of the assay.

Metal ion	Concentration (M)	Spiked concentration (M)	Recovery (%)
Cu^{2+}	1.61×10^{-5}	1.58×10^{-5}	101.2
Cu^{2+}	2.65×10^{-5}	2.23×10^{-5}	99.8
Cu^{2+}	2.96×10^{-5}	3.10×10^{-5}	98.1
Fe^{3+}	2.11×10^{-5}	1.98×10^{-5}	100.8
Fe^{3+}	3.13×10^{-5}	3.34×10^{-5}	99.2
Fe^{3+}	3.55×10^{-5}	3.30×10^{-5}	107.8