Supplementary information

Metal-Enhanced Fluorescence-Based Multilayer Core-Shell Ag-nanocube@SiO$_2$@PMOs Nanocomposite Sensor for Cu$^{2+}$ Detection

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Fig. S1 $^1$H NMR spectrum of Compound 2.

Fig. S2 $^1$H NMR spectrum of Compound 3.
**Fig. S3** (A) plot of absorbance intensities of Ag-nanocube@SiO$_2$@PMOs in C$_2$H$_5$OH with different concentrations of Cu$^{2+}$; (B) Benesi–Hildebrand plot of Ag-nanocube@SiO$_2$@PMOs with Cu$^{2+}$.

**Fig. S4** Normalized X-ray absorption near-edge spectroscopy (XANES) for Cu$^{2+}$-chelated Ag-nanocube@SiO$_2$@PMOs at the copper K-edge (A), and corresponding first derivative XANES spectra (B). Fourier transformed extended X-ray absorption fine structure spectra (EAXFS) (C).