

Supplementary Materials

Tripeptide-Assisted Gold Nanocluster Formation for Fe³⁺ and Cu²⁺ Sensing

Jonghae Youn ^{1,2}, Peiyuan Kang ², Justin Crowe ³, Caleb Thornsby ³, Peter Kim ¹, Zhenpeng Qin ^{2,4,5,6} and Jiyong Lee ^{3,*}

¹ Department of Chemistry and Biochemistry, The University of Texas at Dallas, Richardson, TX 75080, USA

² Department of Mechanical Engineering, The University of Texas at Dallas, Richardson, TX 75080, USA

³ Department of Chemistry and Biochemistry, The University of Texas at Tyler, Tyler, TX 75799, USA

⁴ Department of Bioengineering, The University of Texas at Dallas, Richardson, TX 75080, USA

⁵ Department of Surgery, The University of Texas Southwestern Medical Center, Dallas, TX 75390, USA

⁶ Center for Advanced Pain Studies, The University of Texas at Dallas, Richardson, TX 75080, USA

* Correspondence: jiyonglee@uttyler.edu

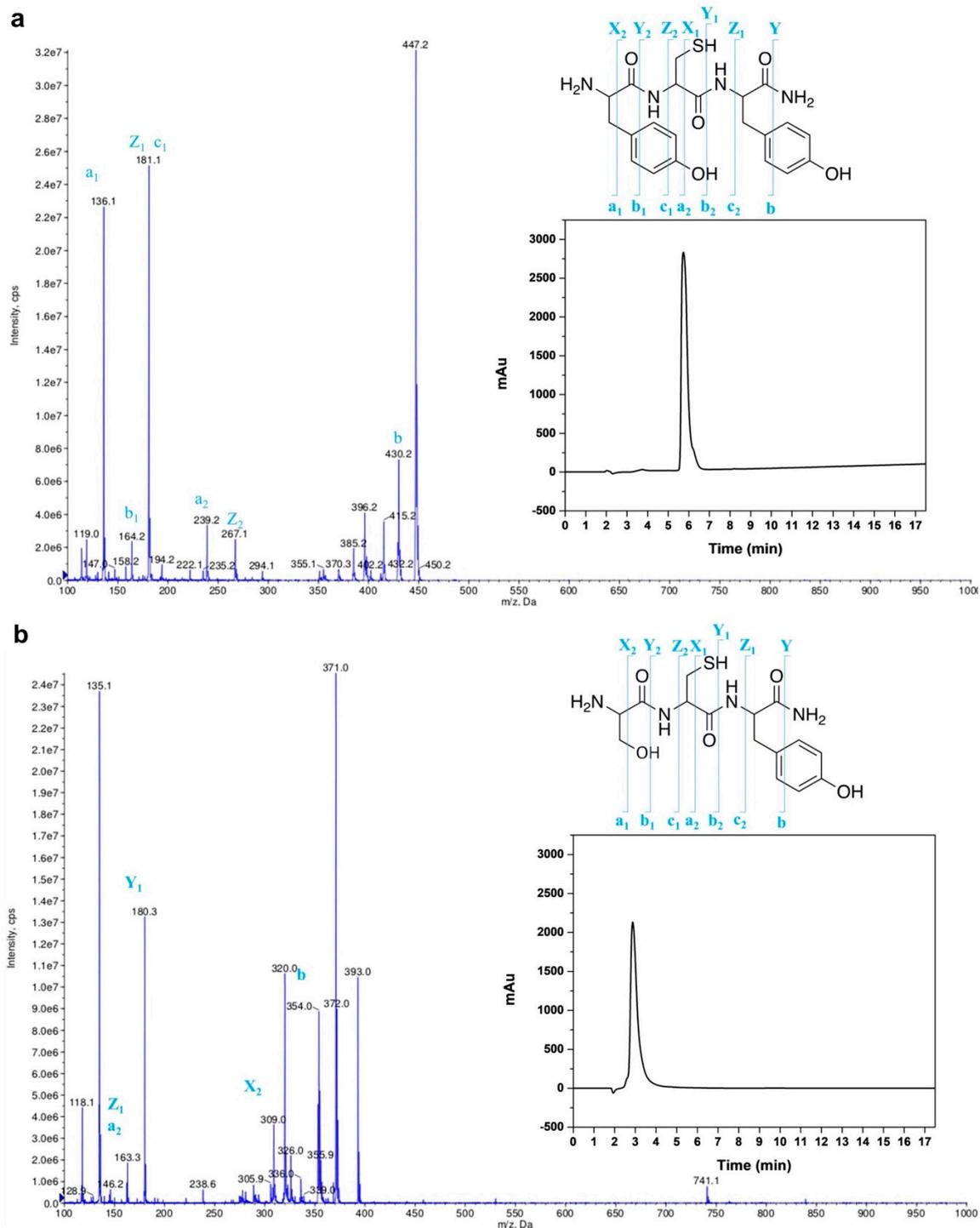


Figure S1. HPLC-MS/MS of (a) YCY and (b) SCY. Insets show analytical HPLC chromatogram of each peptide. LC gradient for YCY: 0% to 30% acetonitrile over 20 min, LC gradient for SCY: 0% acetonitrile over 20 min.

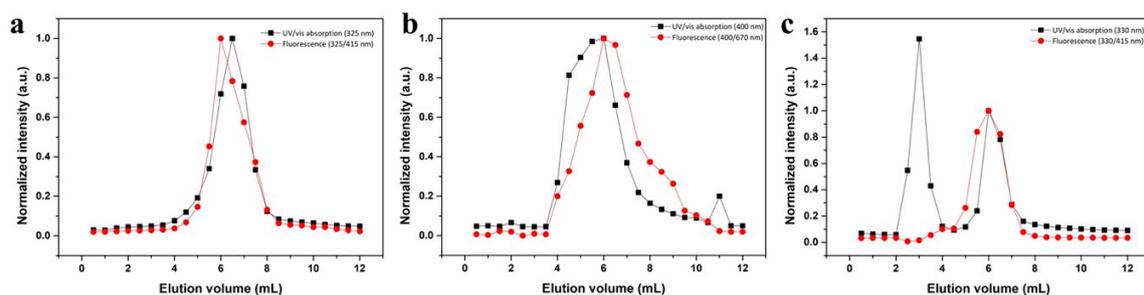


Figure S2. UV-Vis absorption and fluorescence intensity of the fractions from the size exclusion chromatography (SephadexTM G-25): (a) Red-YCY-AuNC, (b) Blue-YCY-AuNC, and (c) Blue-SCY-AuNC.

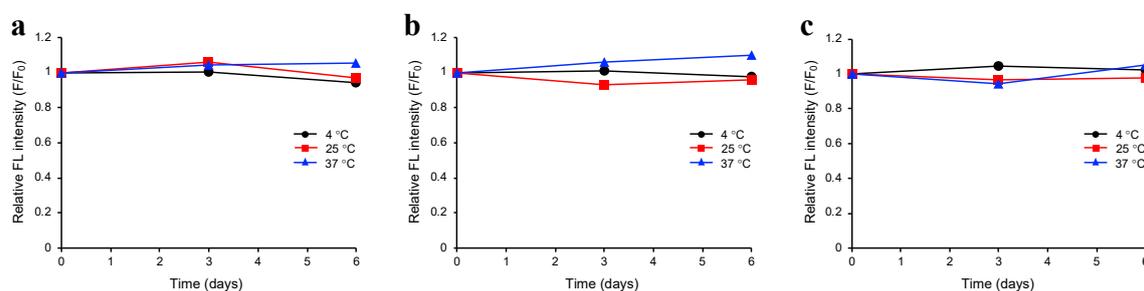


Figure S3. Fluorescence intensity of the AuNC solutions over time at 4 °C, 25 °C and 37 °C: (a) Blue-SCY-AuNC (λ_{ex} : 325 nm, λ_{em} : 415 nm), (b) Blue-YCY-AuNC (λ_{ex} : 325 nm, λ_{em} : 415 nm), and (c) Red-YCY-AuNC (λ_{ex} : 400 nm, λ_{em} : 675 nm).

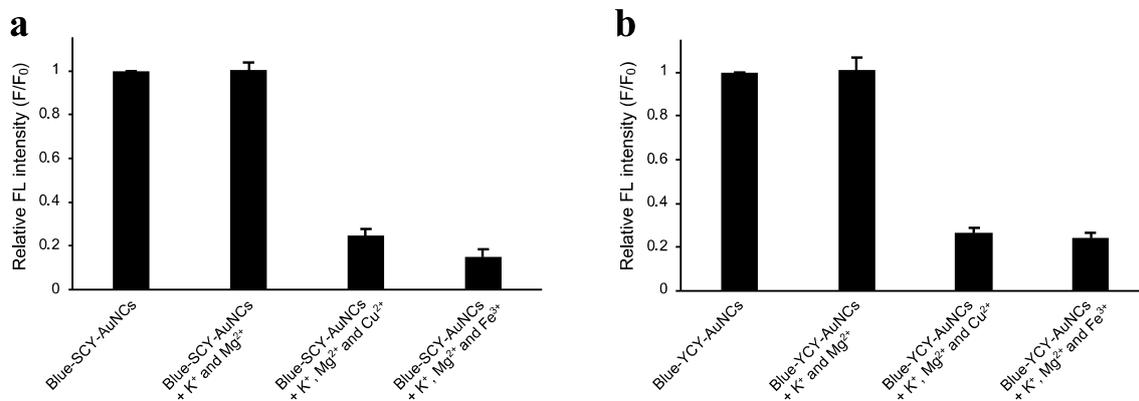


Figure S4. Fluorescence quenching of Blue-SCY-AuNC (a) and Blue-YCY-AuNC (b) by Cu²⁺ (50 μM) and Fe³⁺ (50 μM) in the presence of K⁺ (50 μM) and Mg²⁺ (50 μM). Fluorescent emission at 415 nm was measured with 325 nm excitation.

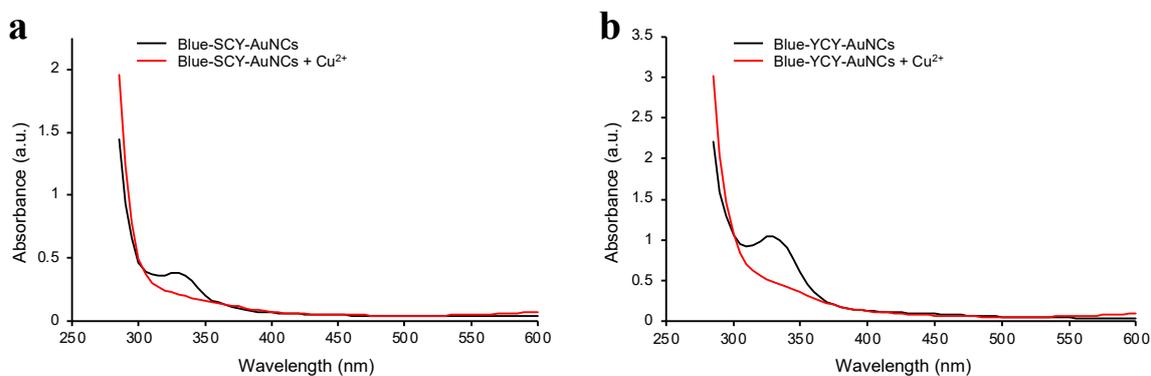


Figure S5. UV-Vis absorption spectra of Blue-SCY-AuNC (a) and Blue-YCY-AuNC (b) in the presence or absence of Cu²⁺ ions (50 μM). The effect Fe³⁺ ions on UV-Vis spectrum was not examined due to the spectral overlap of Fe³⁺ ions and the AuNCs.