

Supplementary material

Fluorescent AgNCs formed on bifunctional DNA template for potassium ion detection

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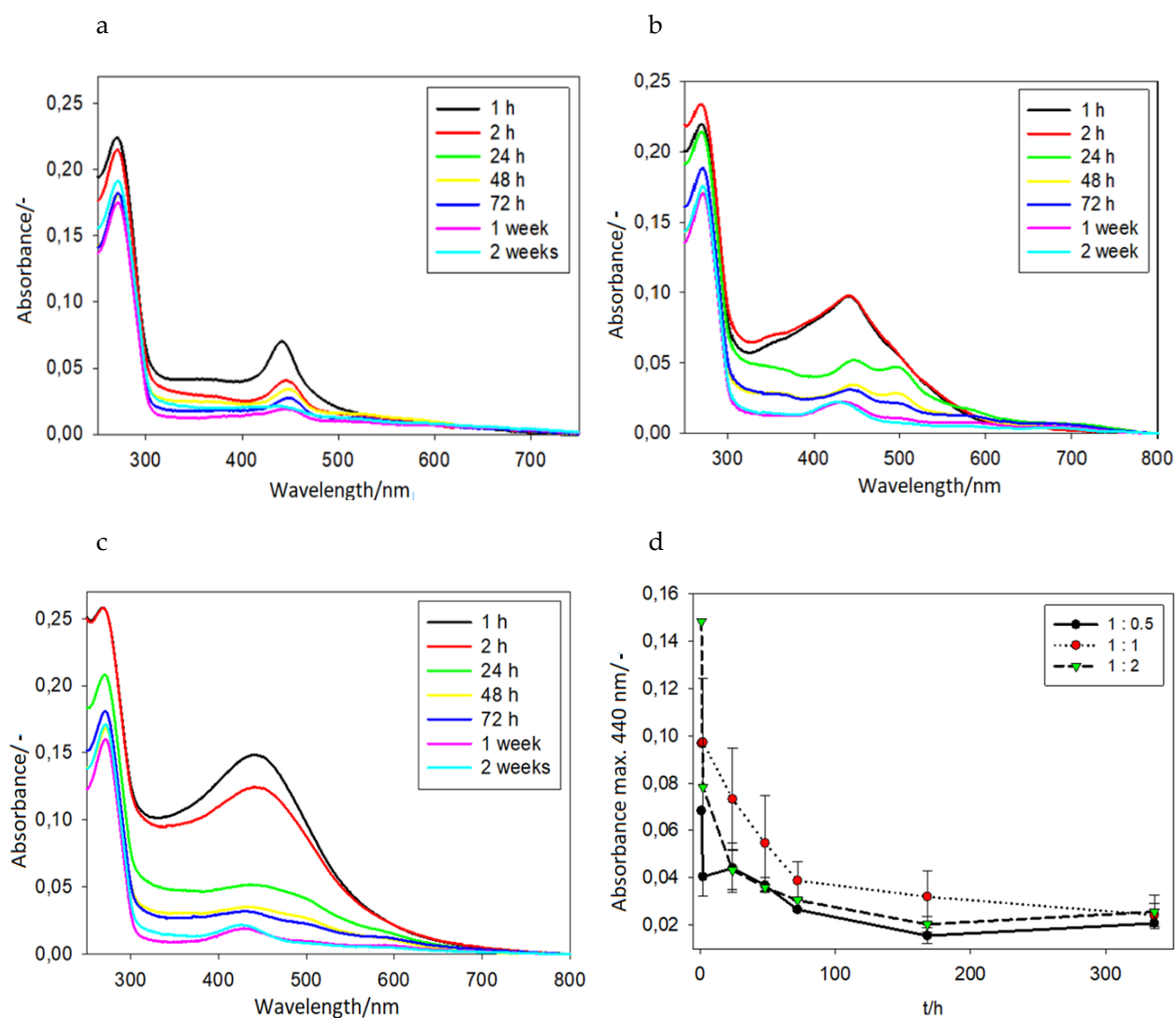


Figure S1 Absorption spectra of C12-AgNCs with cytosine to Ag^+ ratio 1:0.5 (a), 1:1 (b) and 1:2 (c) (Ag^+/C). Changes in time of absorbance value at $\lambda=440$ nm (d). Conditions: 2 μM probe, 10 mM Tris- CH_3COOH (pH=7.5), $[\text{Ag}^+]=12 \mu\text{M}$, $[\text{BH}_4^-]=12 \mu\text{M}$ (a), $[\text{Ag}^+]=[\text{BH}_4^-]=24 \mu\text{M}$ (b), $[\text{Ag}^+]=48 \mu\text{M}$, $[\text{BH}_4^-]=48 \mu\text{M}$ (Ag^+/C).

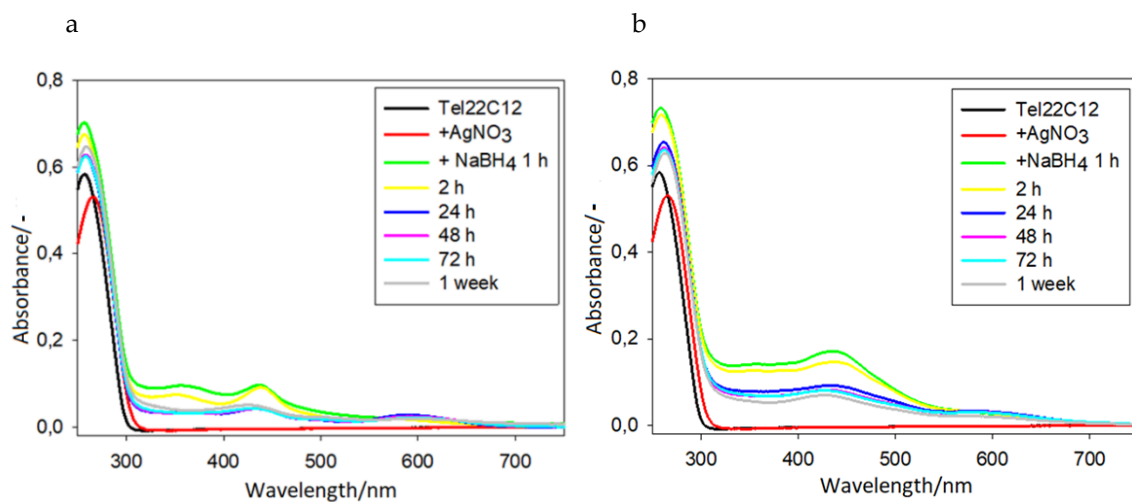


Figure S2 Absorption spectra of Tel22C12-AgNCs with cytosine to Ag^+ ratio 1:1 (Ag^+/C) (a) or cytosine and guanine to Ag^+ ratio 1:1 (Ag^+/CG) (b).

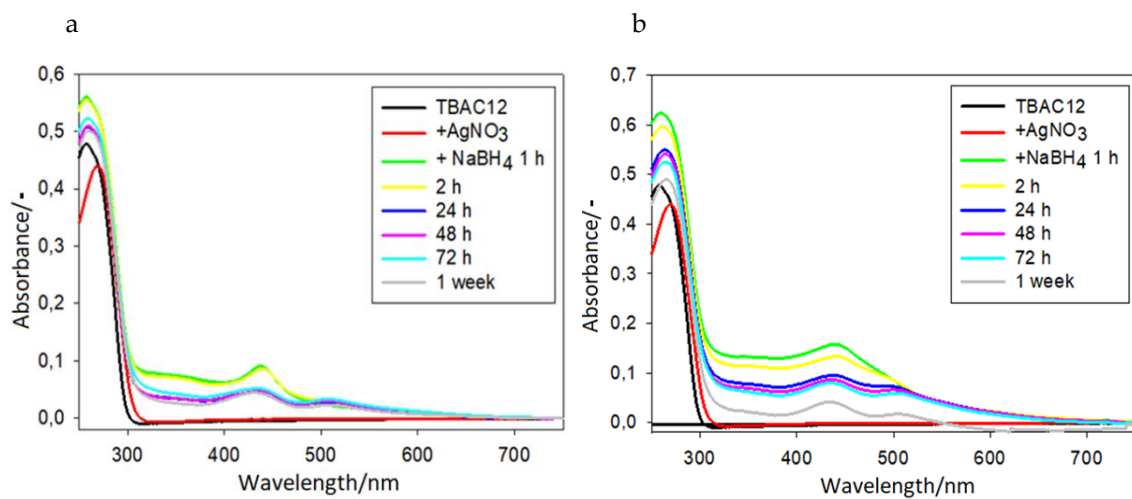


Figure S3 Absorption spectra of TBAC12-AgNCs with cytosine to Ag^+ ratio 1:1 (Ag^+/C) (a) or cytosine and guanine to Ag^+ ratio 1:1 (Ag^+/CG) (b).

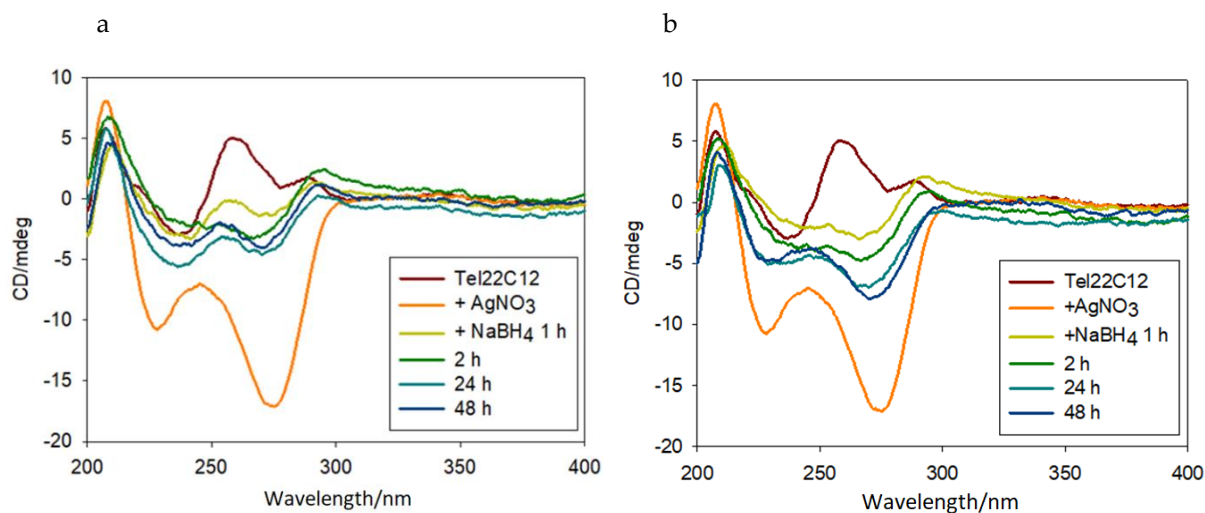


Figure S4 Circular dichroism spectra of Tel22C12-AgNCs with cytosine to Ag⁺ ratio 1:1 (Ag⁺/C) (a) or cytosine and guanine to Ag⁺ ratio 1:1 (Ag⁺/CG) (b).

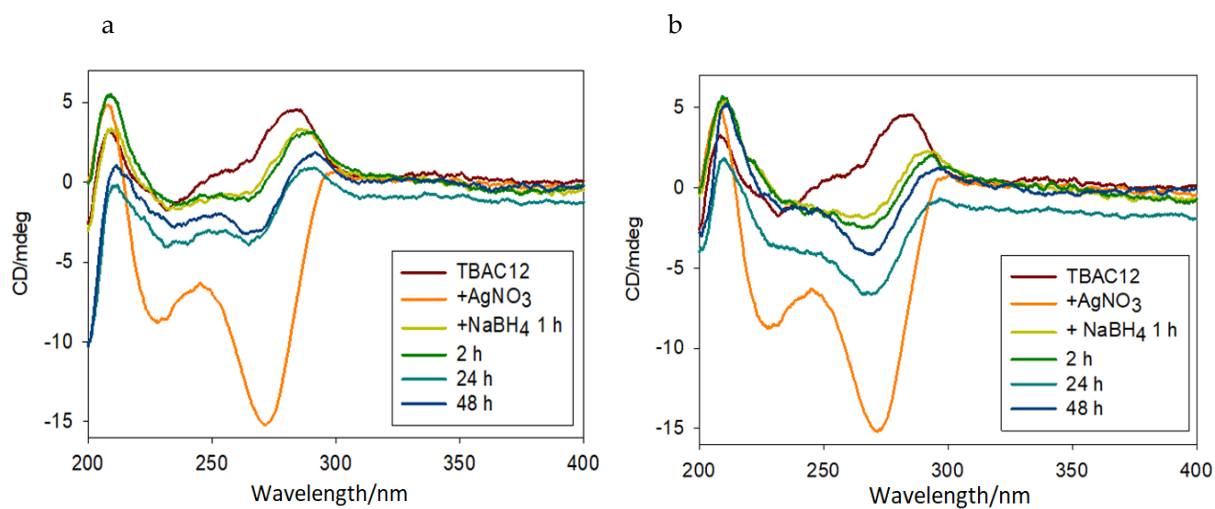


Figure S5 Circular dichroism spectra of TBAC12-AgNCs with cytosine to Ag⁺ ratio 1:1 (Ag⁺/C) (a) or cytosine and guanine to Ag⁺ ratio 1:1 (Ag⁺/CG) (b).

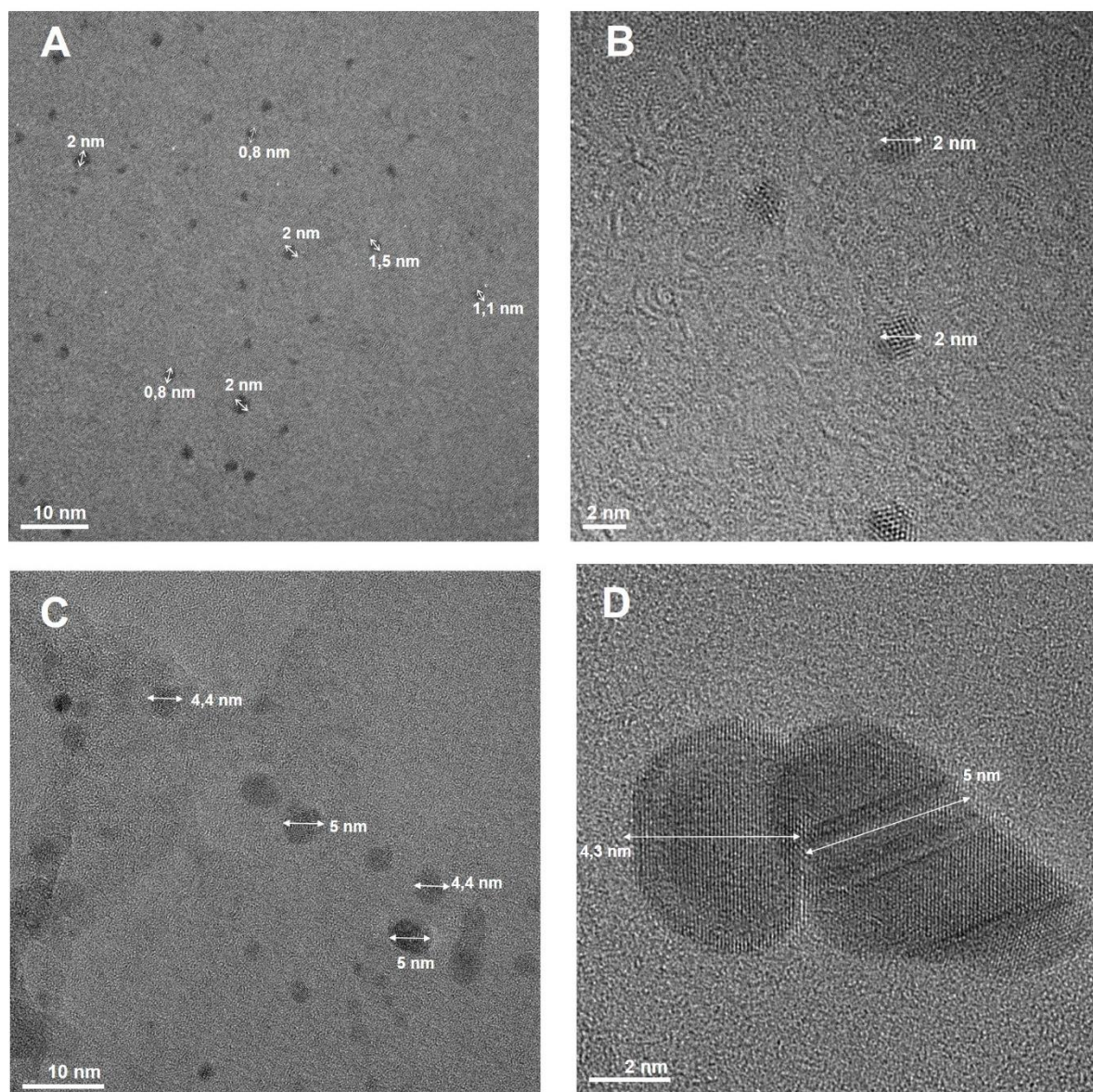


Figure S6 Transmission electron microscopy (TEM) images of the nanoclusters C12-AgNCs (A,B) and Tel22C12-AgNCs (C,D). Scale bar 10 nm (A,C), 2 nm (B,D).

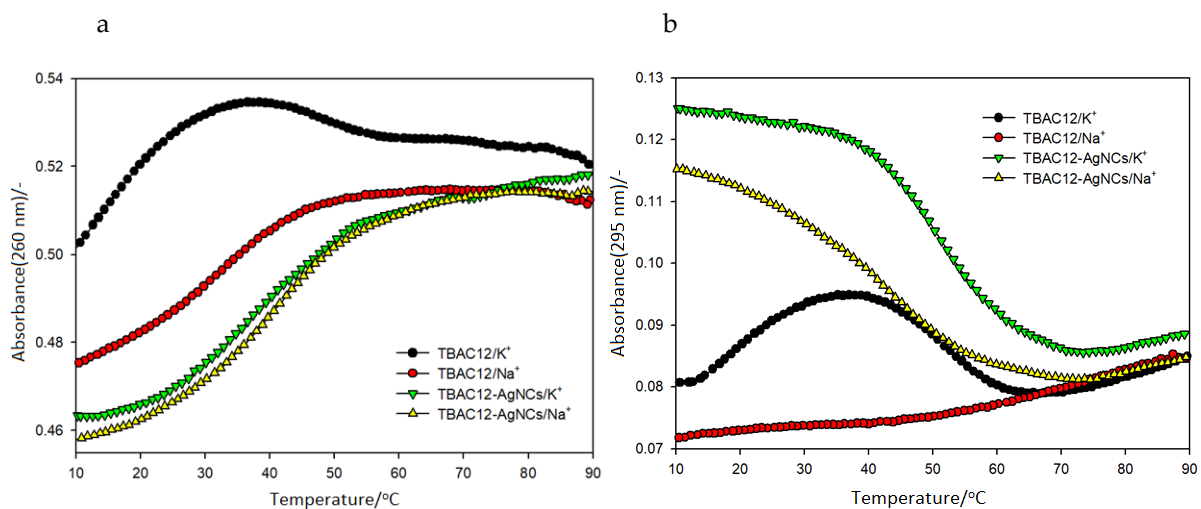


Figure S7 UV melting profiles of TBAC12 and TBAC12-AgNCs (2 μM) in 10 mM Tris-acetate buffer (pH=7.5) containing 100 mM NaCl or 100 mM KCl; monitored at 260 nm (a) or 295 nm (b).

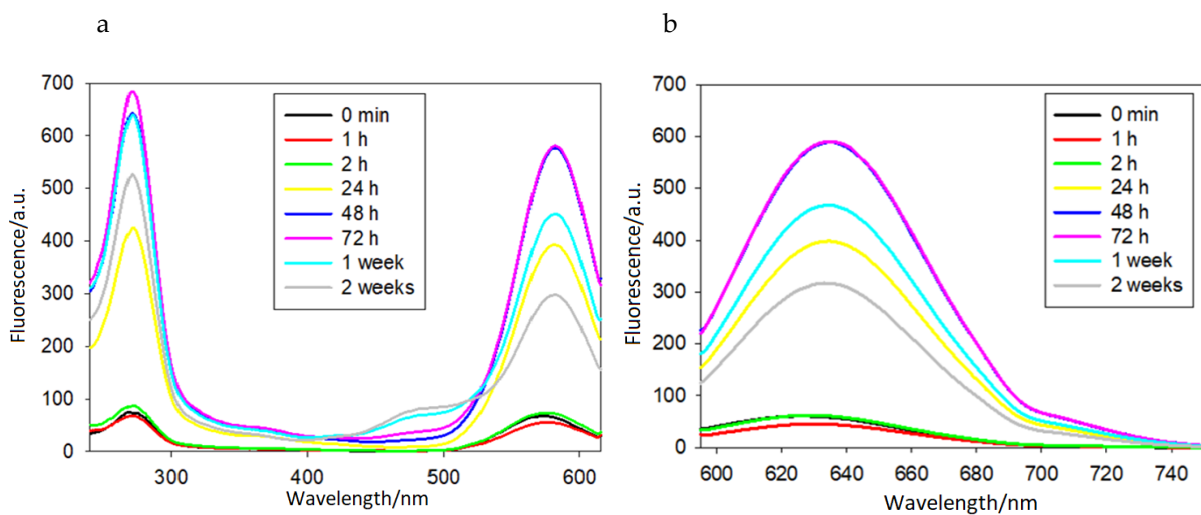


Figure S8 Excitation spectra at emission wavelength $\lambda_{\text{em}}=630$ nm (a) and emission spectra at excitation wavelength $\lambda_{\text{ex}}=580$ nm (b) of C12-AgNCs with cytosine to Ag^+ ratio 1:1 (Ag^+/C).

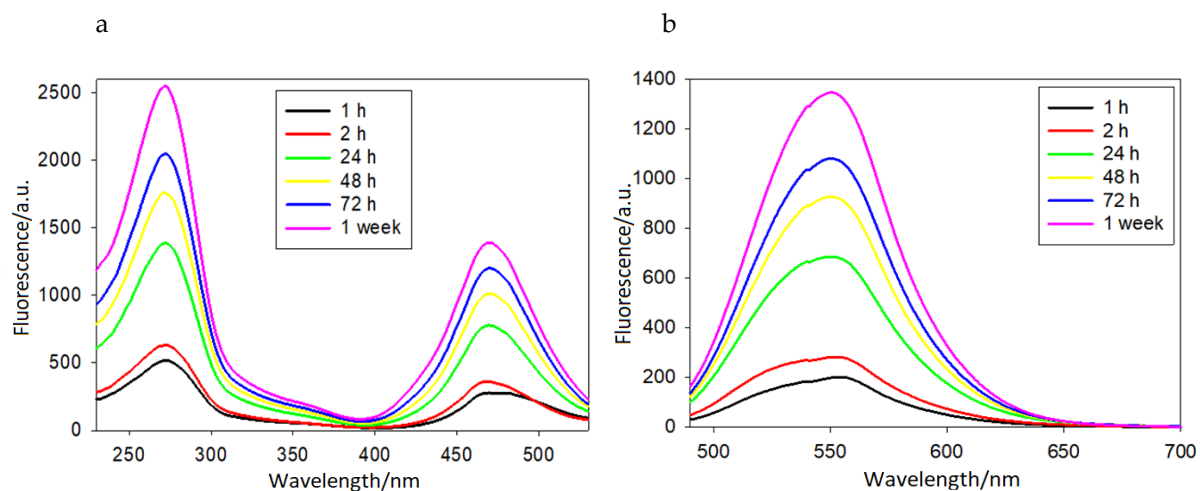


Figure S9 Excitation spectra at emission wavelength $\lambda_{\text{em}} = 550 \text{ nm}$ (a) and emission spectra at excitation wavelength $\lambda_{\text{ex}} = 470 \text{ nm}$ (b) of Tel22C12-AgNCs with cytosine to Ag^+ ratio 1:1 (Ag^+/C).

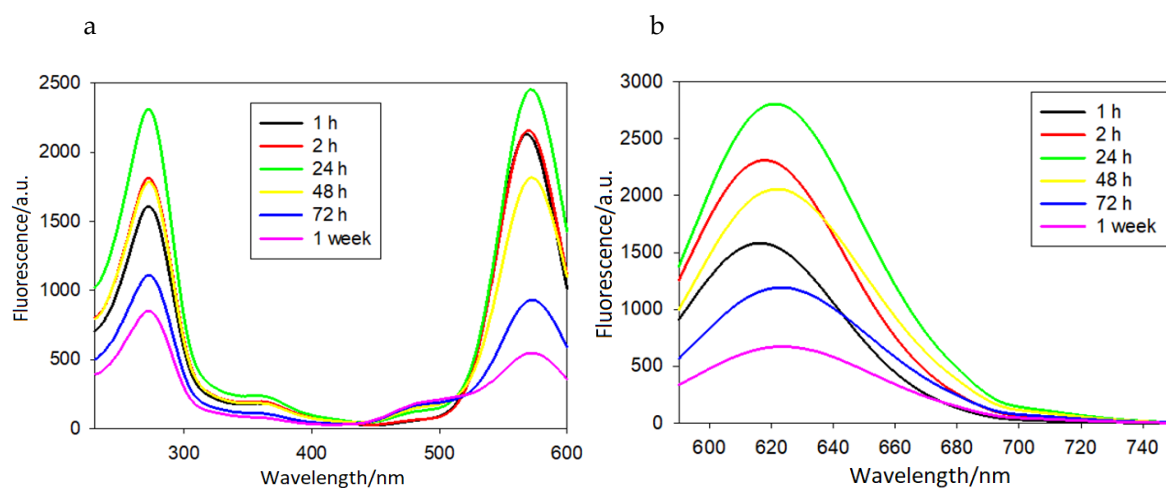


Figure S10 Excitation spectra at emission wavelength $\lambda_{\text{em}} = 620 \text{ nm}$ (a) and emission spectra at excitation wavelength $\lambda_{\text{ex}} = 570 \text{ nm}$ (b) of Tel22C12-AgNCs with cytosine to Ag^+ ratio 1:1 (Ag^+/C).

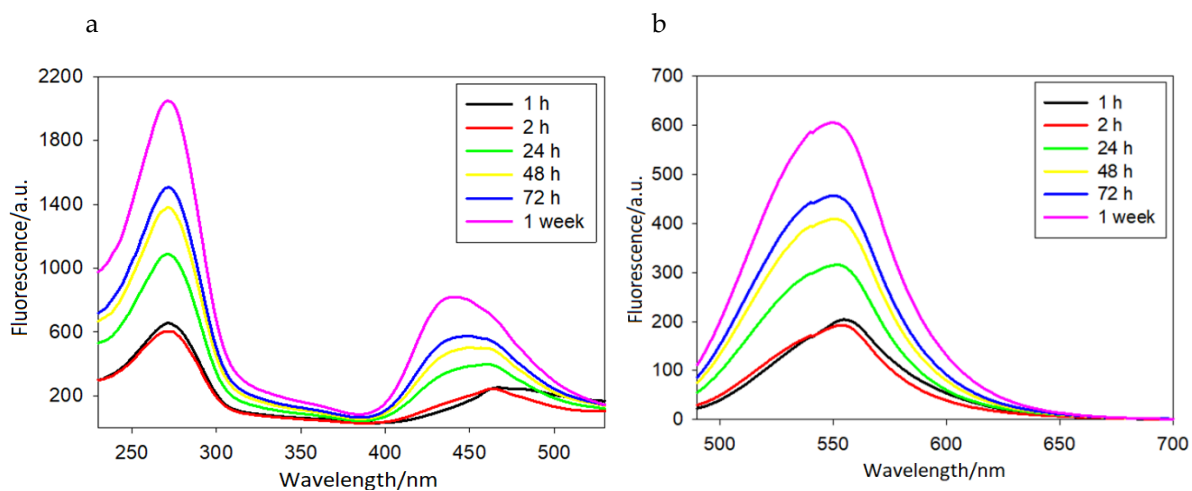


Figure S11 Excitation spectra at emission wavelength $\lambda_{em}=550$ nm (a) and emission spectra at excitation wavelength $\lambda_{ex}=470$ nm (b) of TBAC12-AgNCs with cytosine to Ag^+ ratio 1:1 (Ag^+/C).

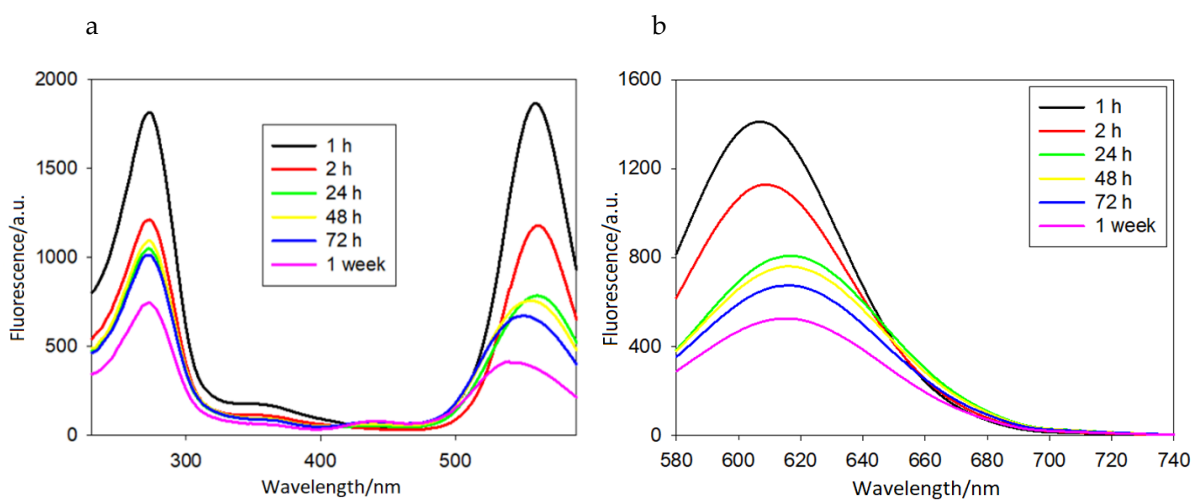


Figure S12 Excitation spectra at emission wavelength $\lambda_{em}=610$ nm (a) and emission spectra at excitation wavelength $\lambda_{ex}=560$ nm (b) of TBAC12-AgNCs with cytosine to Ag^+ ratio 1:1 (Ag^+/C).

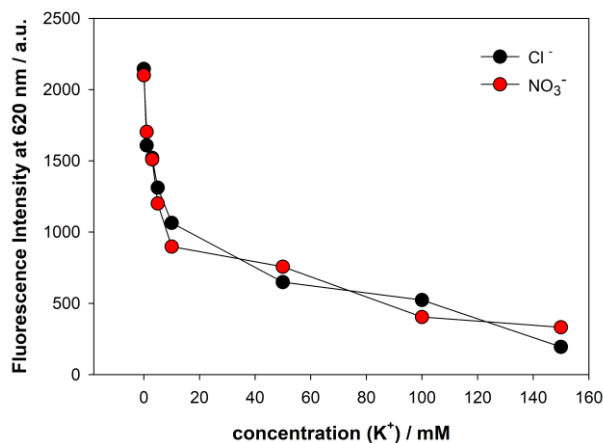


Figure S13. Influence of K^+ ions on red emission spectra of Tel22C12-AgNCs upon addition of KCl (black circles) or KNO_3 (red circles).

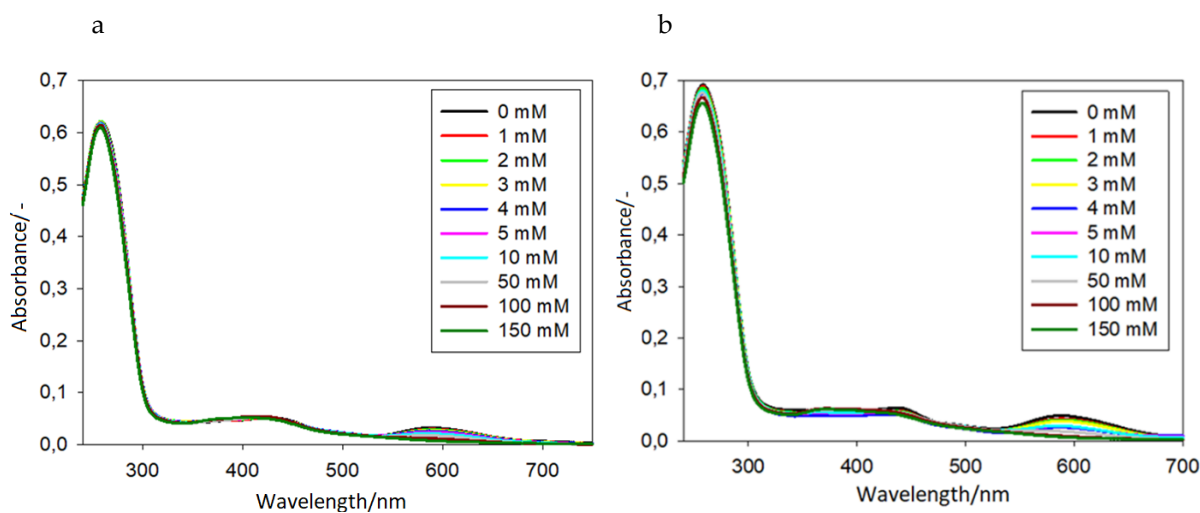


Figure S14 Absorption spectra of Tel22C12-AgNCs with cytosine to Ag^+ ratio 1:1 (Ag^+/C) upon titration with KCl (a) and NaCl (b).

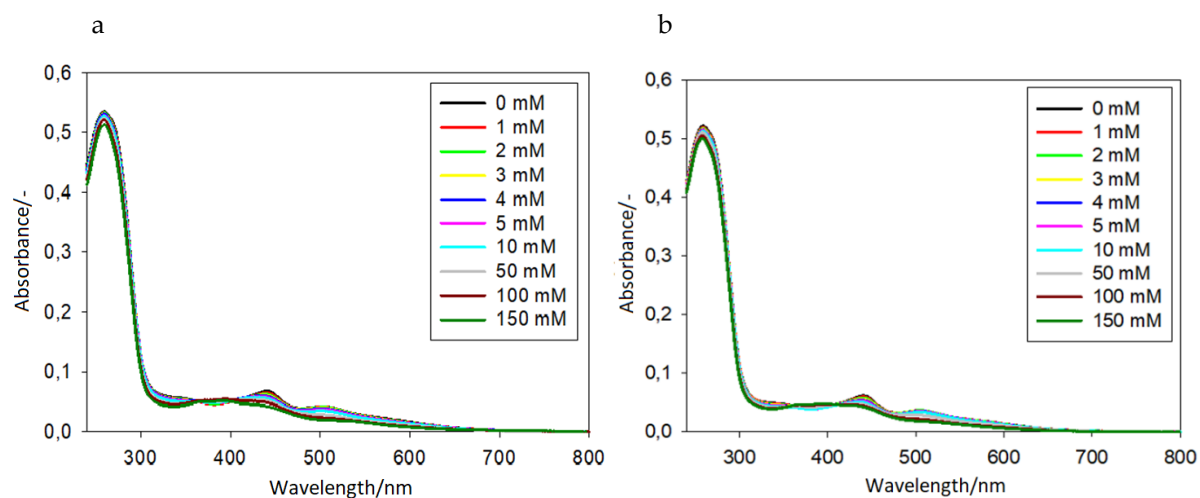


Figure S15 Absorption spectra of TBAC12-AgNCs with cytosine to Ag^+ ratio 1:1 (Ag^+/C) upon titration with KCl (a) and NaCl (b).

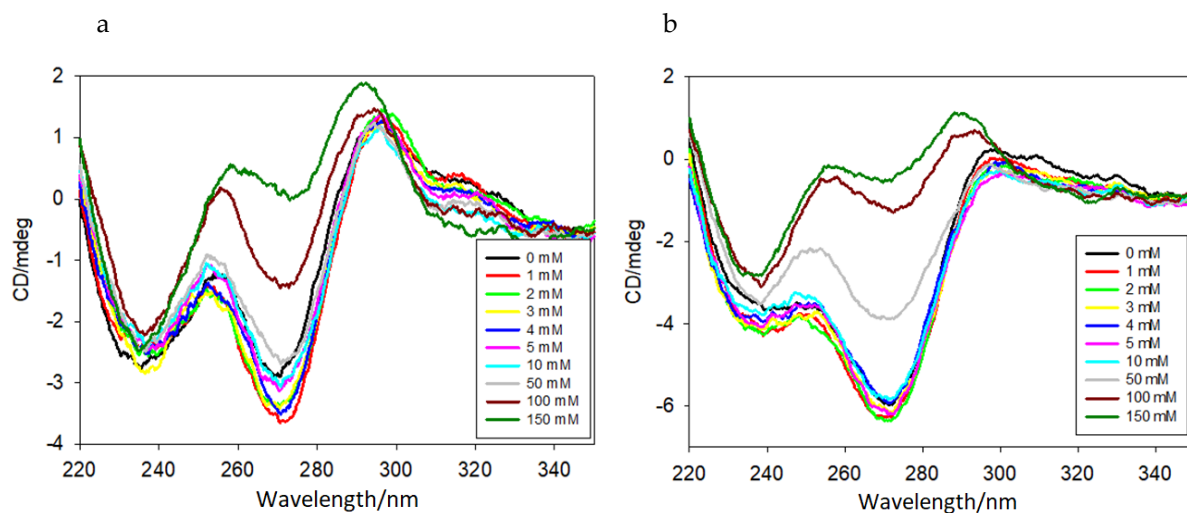


Figure S16 Circular dichroism spectra of Tel22C12-AgNCs with cytosine to Ag^+ ratio 1:1 (Ag^+/C) upon titration with KCl (a) and NaCl (b).

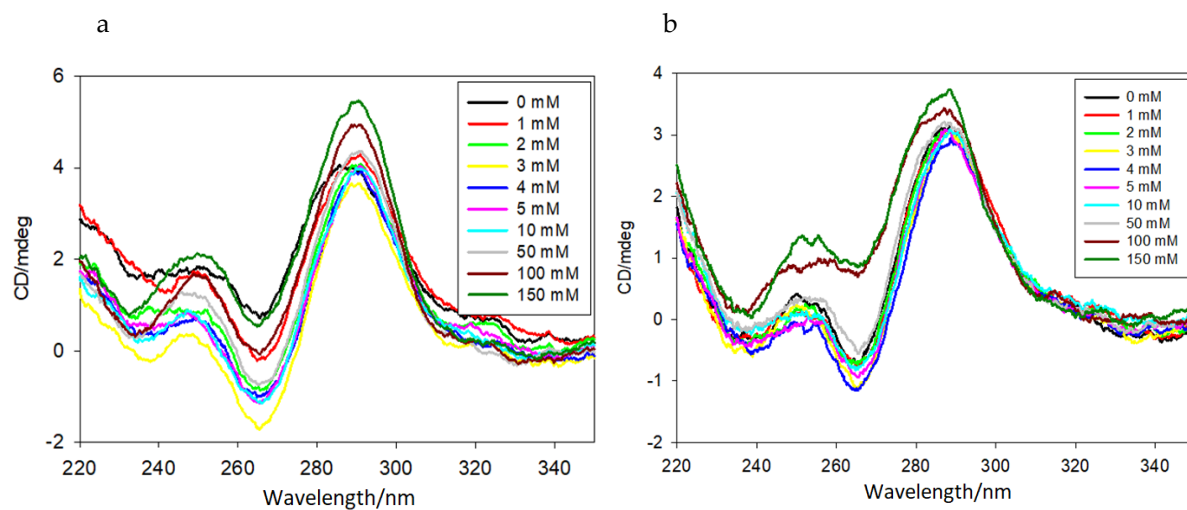


Figure S17 Circular dichroism spectra of TBAC12-AgNCs with cytosine to Ag^+ ratio 1:1 (Ag^+/C) upon titration with KCl (a) and NaCl (b).