

Supporting Information

Natural Tripeptide Capped pH-Sensitive Gold Nanoparticles for Efficacious Doxorubicin Delivery both *in Vitro* and *in Vivo*

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Characterization details of tripeptide (KFG). FT-IR (KBr) (cm^{-1}): 3430 br, 2941 br, 1737 s, 1660 s, 1553 s, 1455 m, 1365 w, 1254 w, 1168 w, 1107 w, 991 w; $^1\text{H-NMR}$ (D_2O , 400 MHz, TMS, rt): δ (ppm) 1.07-1.12 (*m*, 2H), 1.76-1.78 (*m*, 2H), 2.16-2.20 (*m*, 2H), 2.84-2.89 (*m*, 2H), 2.97-3.02 (*m*, 2H), 3.55 (*s*, 2H), 3.87-3.89 (*m*, 1H), 4.34-4.38 (*m*, 1H), 7.13-7.27 (*m*, 5H); $^{13}\text{C-NMR}$ (D_2O , 100 MHz, TMS, rt): δ (ppm) 21.09, 26.31, 30.32, 33.66, 37.01, 39.04, 52.73, 55.85, 127.33, 128.81, 129.23, 135.87, 169.24, 171.95, 178.96; ESI-MS: m/z calcd for ($\text{M}^+ + \text{H}$): 351.2026, found 351.2032; Elemental analysis for $\text{C}_{17}\text{H}_{27}\text{N}_4\text{O}_4\text{Cl}$ Calculated: C, 52.78; H, 7.03; N, 14.48; Found: C, 52.70; H, 7.1; N, 14.44.

Figures.

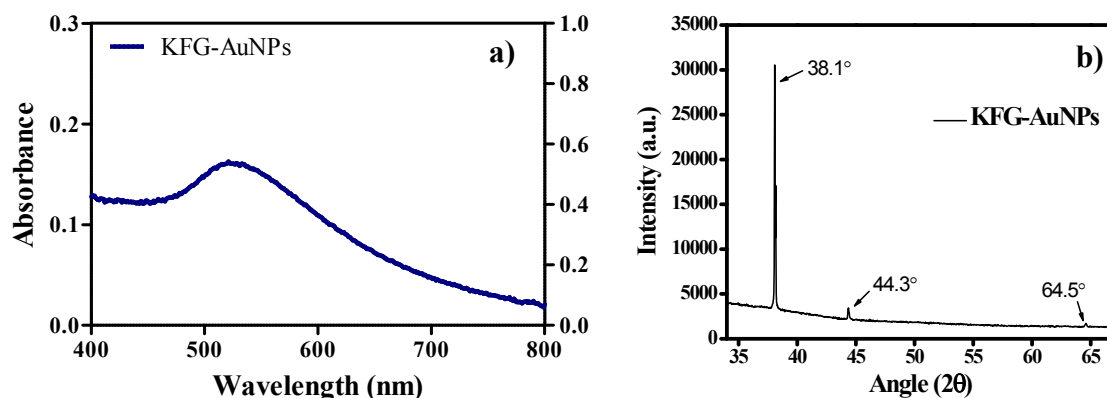


Figure S1. The UV-Vis spectrum (a) and X-ray diffraction (b) analysis of tripeptide (KFG) stabilized gold nanoparticles, i.e., KFG-AuNPs.

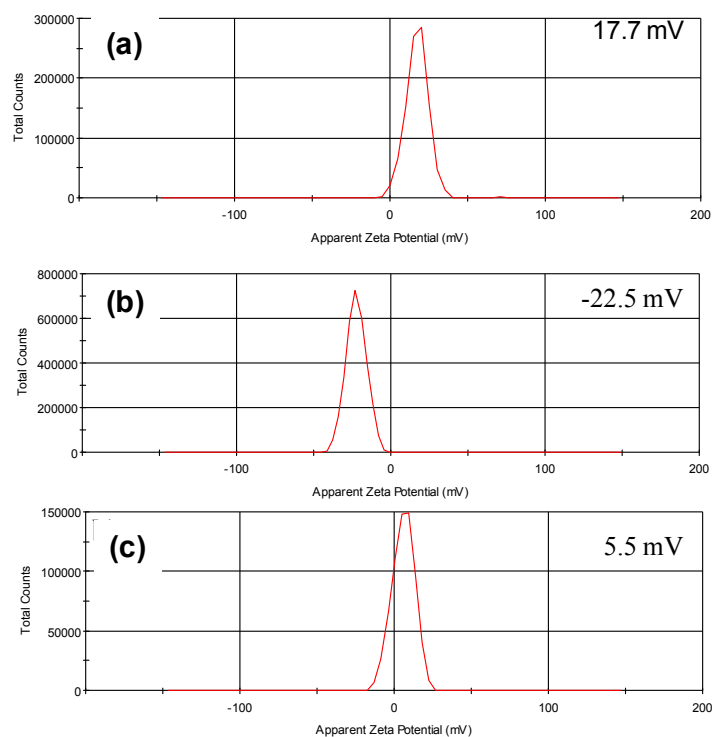


Figure S2. Representative plots for zeta potential measurements of KFG (a), KFG-AuNPs (b) and DOX associated KFG-AuNPs (c).

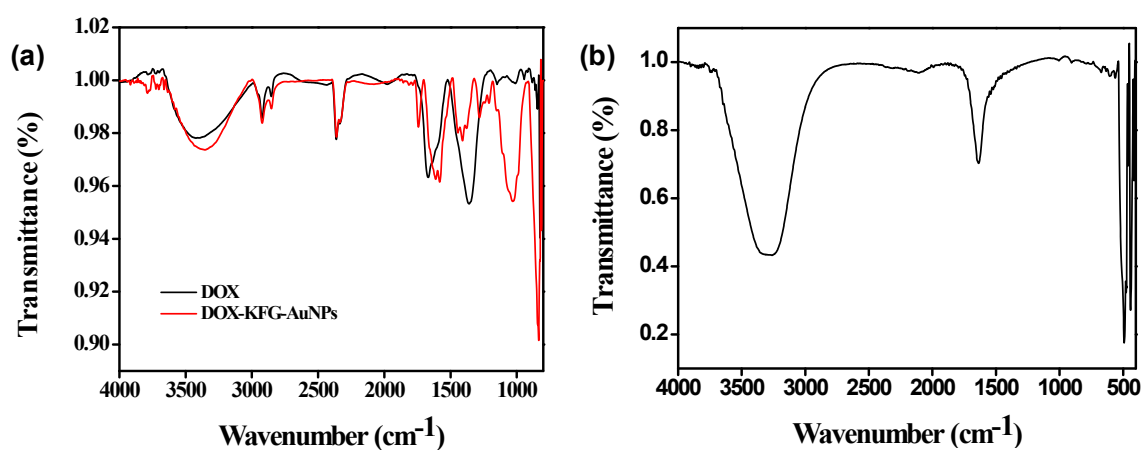


Figure S3. (a) The comparative analysis of FT-IR spectra of doxorubicin (DOX) and DOX-KFG-AuNPs and (b) the FT-IR spectrum of KFG-AuNPs.

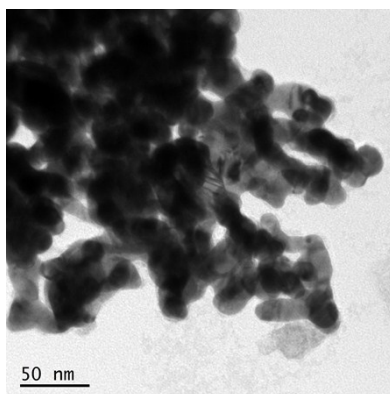


Figure S4. TEM image of DOX-KFG-AuNPs at pH 6.0.

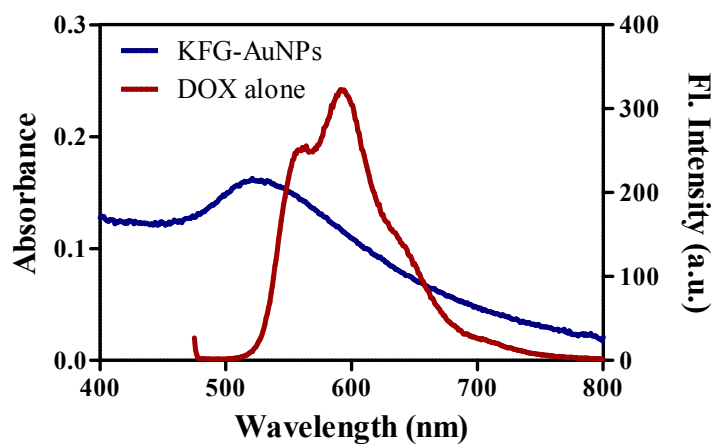


Figure S5. The plot showing overlay of the emission spectrum of doxorubicin and the UV-Vis absorption spectrum of KFG-AuNPs.

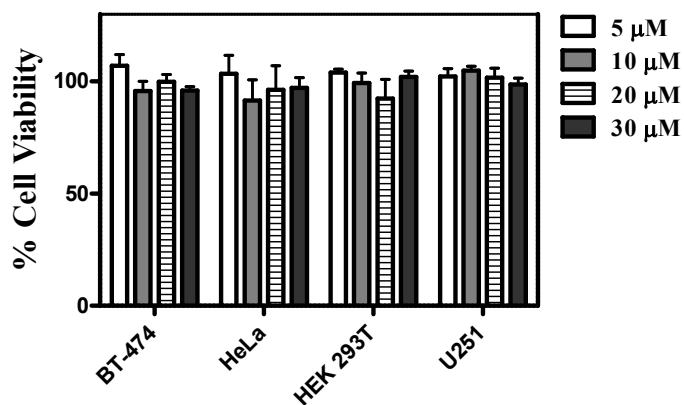


Figure S6. Cell viability analysis (MTT based) of various cell lines treated with KFG-AuNPs at different concentrations for a period of 24 h.

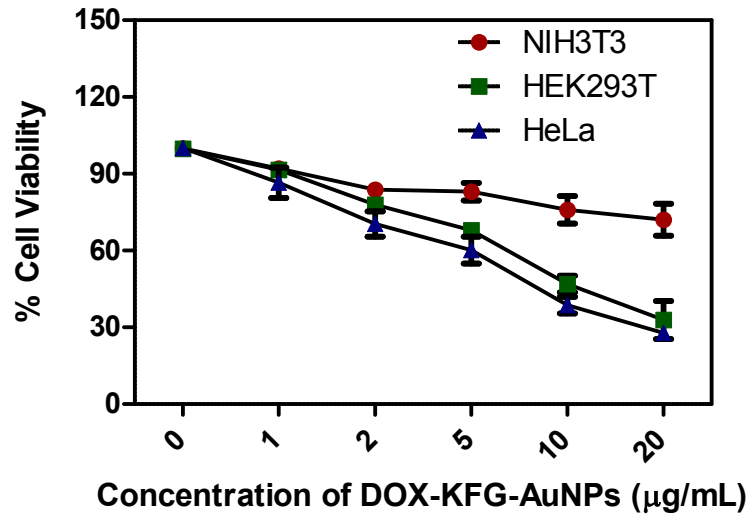


Figure S7. Comparison of cell viability analyses (MTT based) among cancerous and non-cancerous cell lines treated with DOX-KFG-AuNPs at different concentrations for a period of 24 h.

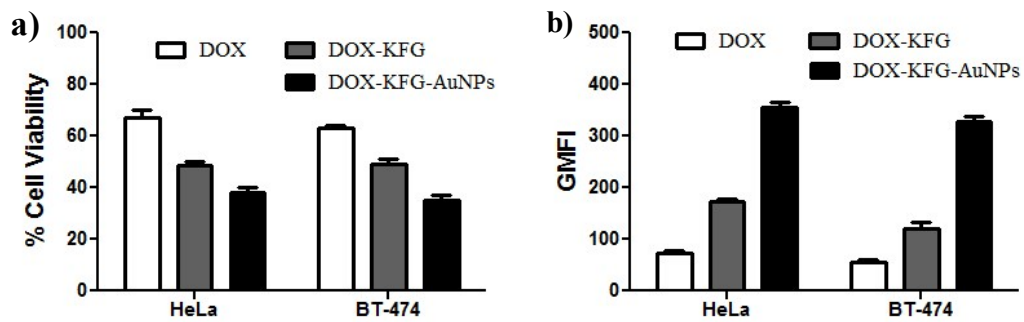


Figure S8. (a) Cytotoxicity (10 µg/mL) and (b) flow cytometry (2.5 µg/mL) analysis for DOX-KFG-AuNPs treatments in comparison with DOX alone and DOX-KFG nanovesicles in representative HeLa and BT-474 cell lines.



Figure S9. Representative images of excised tumors for controls (a) and the treatments mediated by free DOX (b) and DOX-KFG-AuNPs (c).

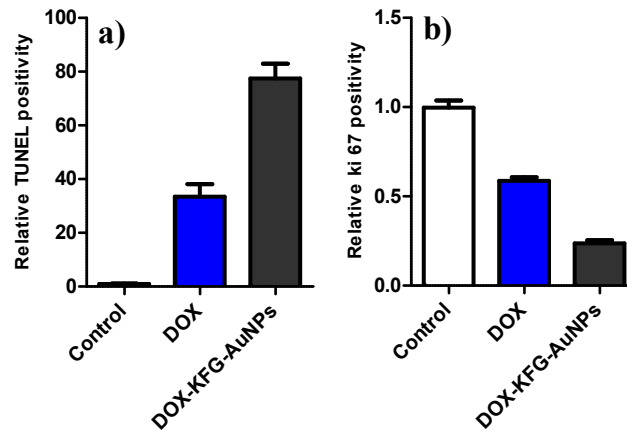


Figure S10. The quantitative analysis of TUNEL positivity (a) and Ki-67 positivity (b) on various tumor sections of different treatments.