Supplementary Information

Doxorubicin-conjugated *β*-$NaYF_4$: Gd^{3+}/ Tb^{3+} multifunctional, phosphor nanorods: A multimodal, luminescent-magnetic probe for simultaneous optical, magnetoresonance imaging and an excellent pH-triggered anti-cancer drug delivery nanovehicle

Preeti Padhye[‡†], Aftab Alam[$], Suvankar Ghorai[$], Samit Chattopadhyay[$], Pankaj Poddar[‡†*]

‡Physical & Materials Chemistry Division, CSIR-National Chemical Laboratory, Pune - 411 008, India

†Academy of Scientific and Innovative Research, Anusandhan Bhawan, Rafi Marg, New Delhi - 110001, India

[$]National Center for Cell Sciences, Ganeshkhind, Pune-, 411 007, India

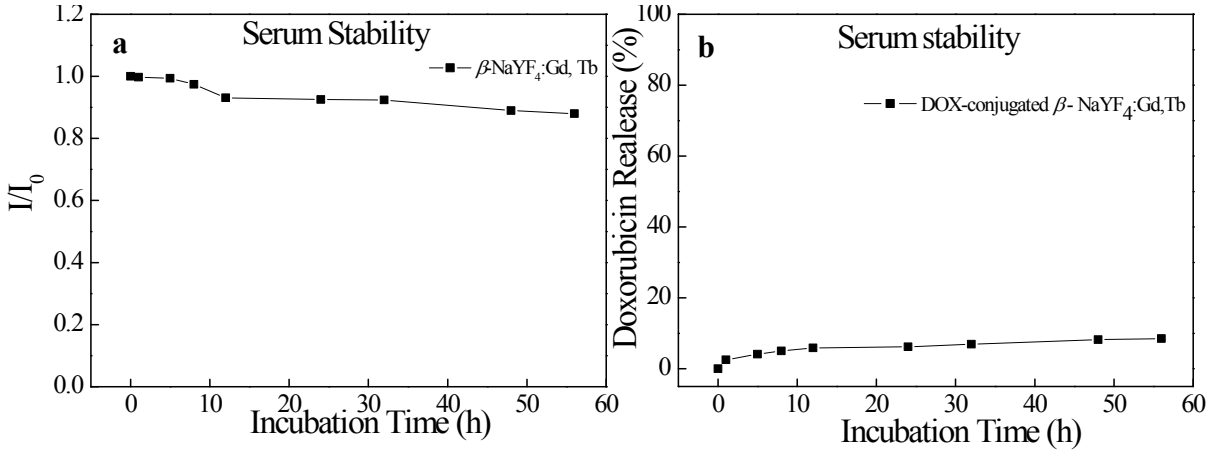

Figure S1: Stability of (a) β-$NaYF_4$: Gd^{3+}/ Tb^{3+} and (b) DOX-conjugated β-$NaYF_4$: Gd^{3+}/ Tb^{3+} in FBS for 3 days at 37 °C.

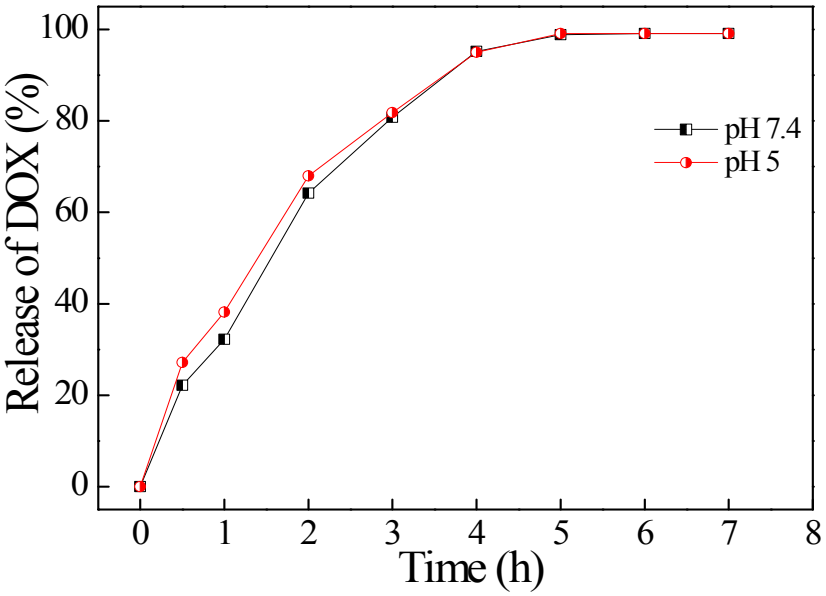

Figure S2: Release behavior of doxorubicin in the physically mixed solution of doxorubicin and β-$NaYF_4$: Gd^{3+}/ Tb^{3+} nanorods at different time interval in PBS buffer at pH 7.4 and pH 5.

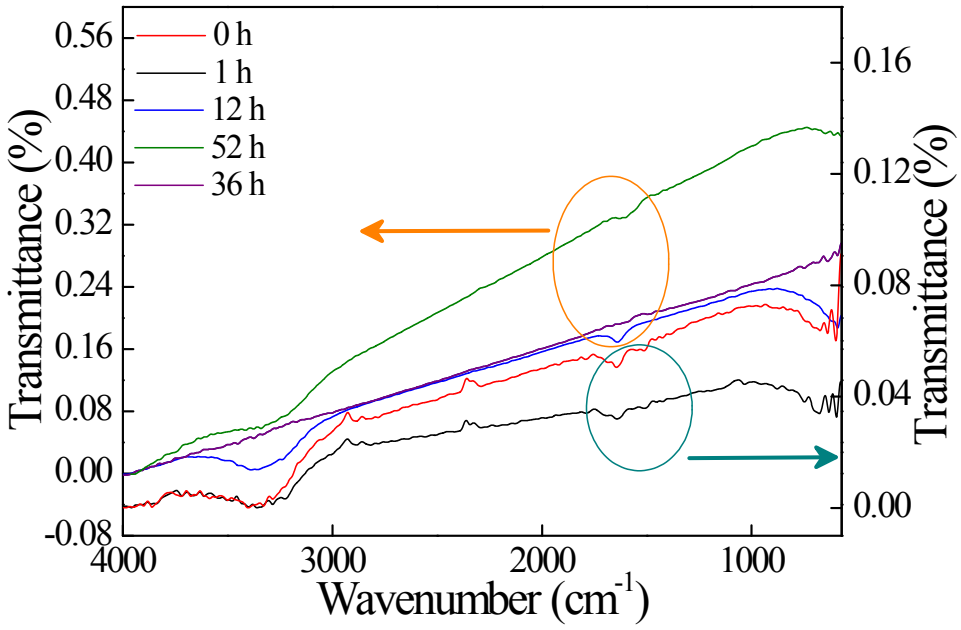

Figure S3: FT-IR spectra of DOX-conjugated β-$NaYF_4$: Gd^{3+}/ Tb^{3+} at different time intervals during dialysis in PBS at pH 5, showing cleavage of hydrazone bond.

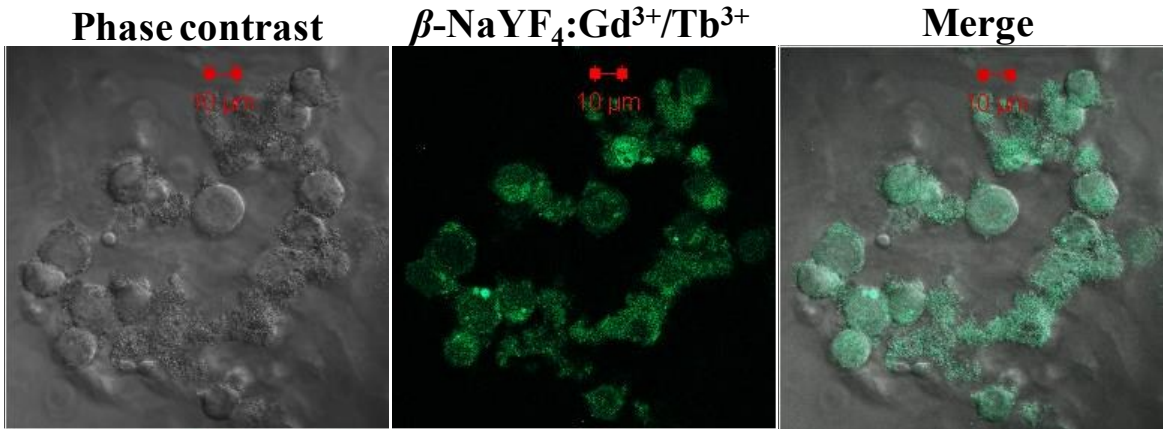

Figure S4: Confocal laser scanning microscopy (CLSM) images of MCF-7 cancer cells incubated with β-$NaYF_4$: Gd^{3+}/ Tb^{3+} nanorods. The scale bar is 10 µm.

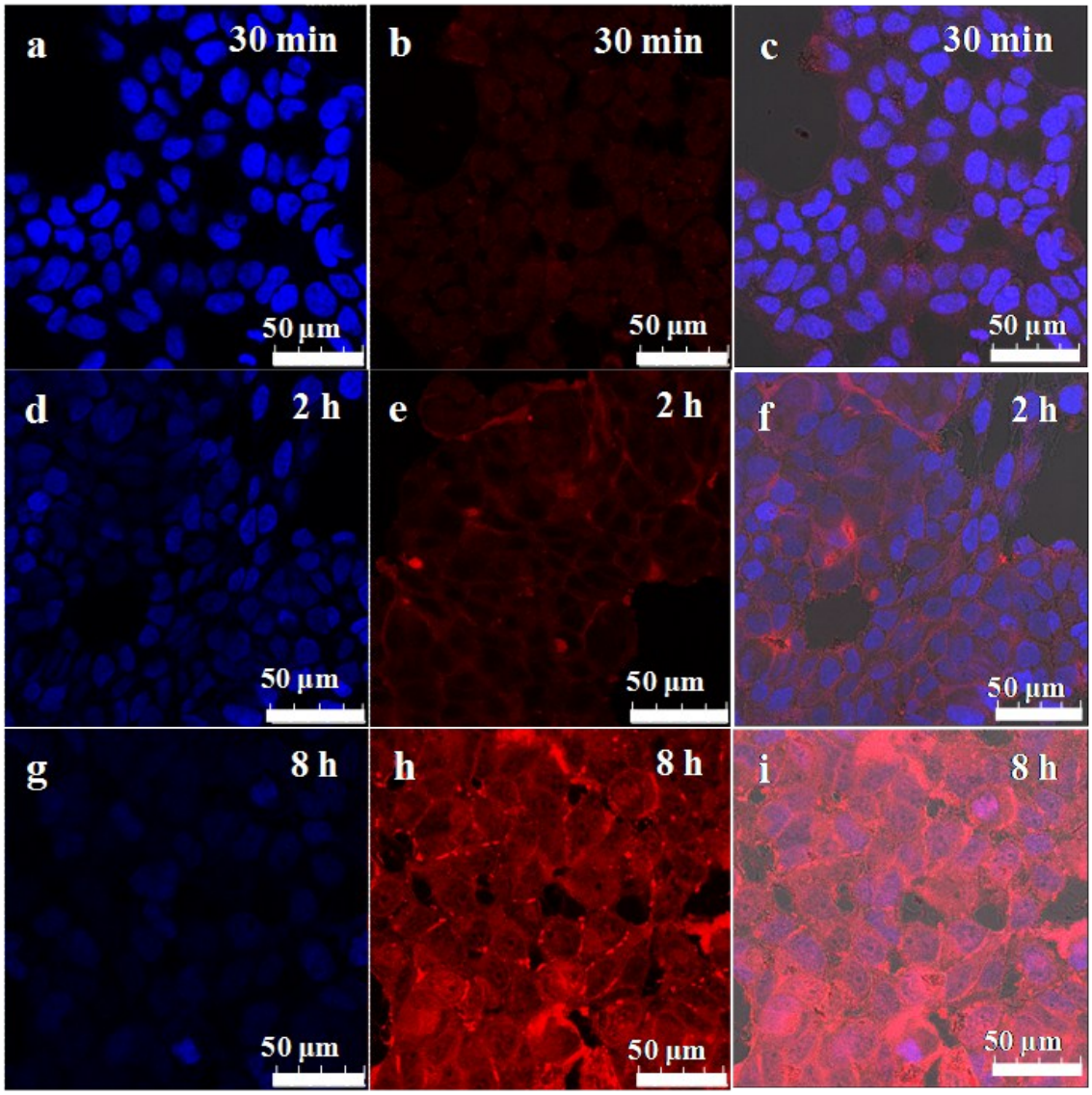

Figure S5: Confocal laser scanning microscopy (CLSM) images of MCF-7 cancer cells incubated with DOX-conjugated β-$NaYF_4$:Gd^{3+}/Tb^{3+} nanorods for 30 min (a-c), 2 h (d-f), and 8 h (g-i) at 37 °C. The columns can be classified as (left) the nuclei of cells (being dyed in blue by DAPI for visualization), (middle) DOX-conjugated β-$NaYF_4$:Gd^{3+}/Tb^{3+} nanorods and (right) a merge of the two channels of both. The red emission (591nm) is from DOX molecules.