

Supplementary Information

Synthesis and Characterization of Novel Protein Nanodots as Drug Delivery Carrier with Enhanced Biological Efficacy of Melatonin in Breast Cancer Cells

Kanchan Yadav¹, Megha Das², Nurul Hassan³, Archana Mishra⁴, Jayeeta Lahiri³, Ashutosh Kumar Dubey⁵, Sanjeev Kumar Yadav², Avanish Singh Parmar^{1*}

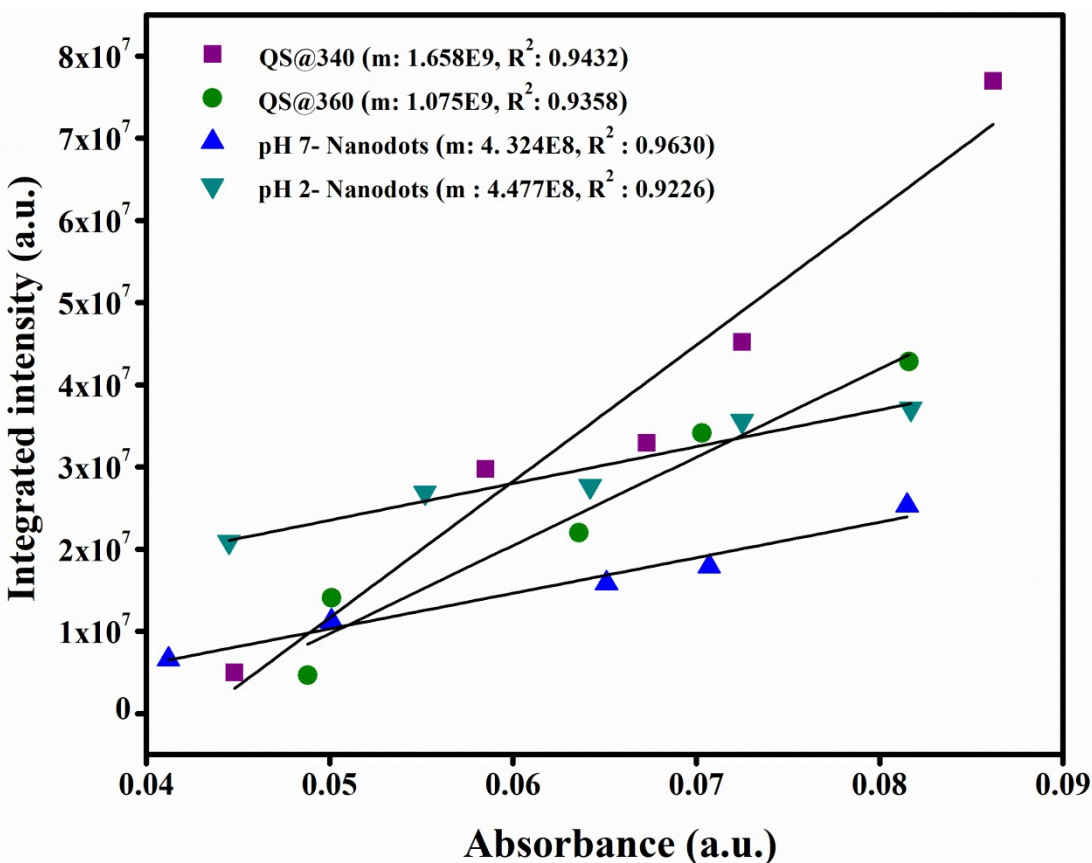


Fig. S1: Linear plot representing integrated emission intensity Vs. Absorbance

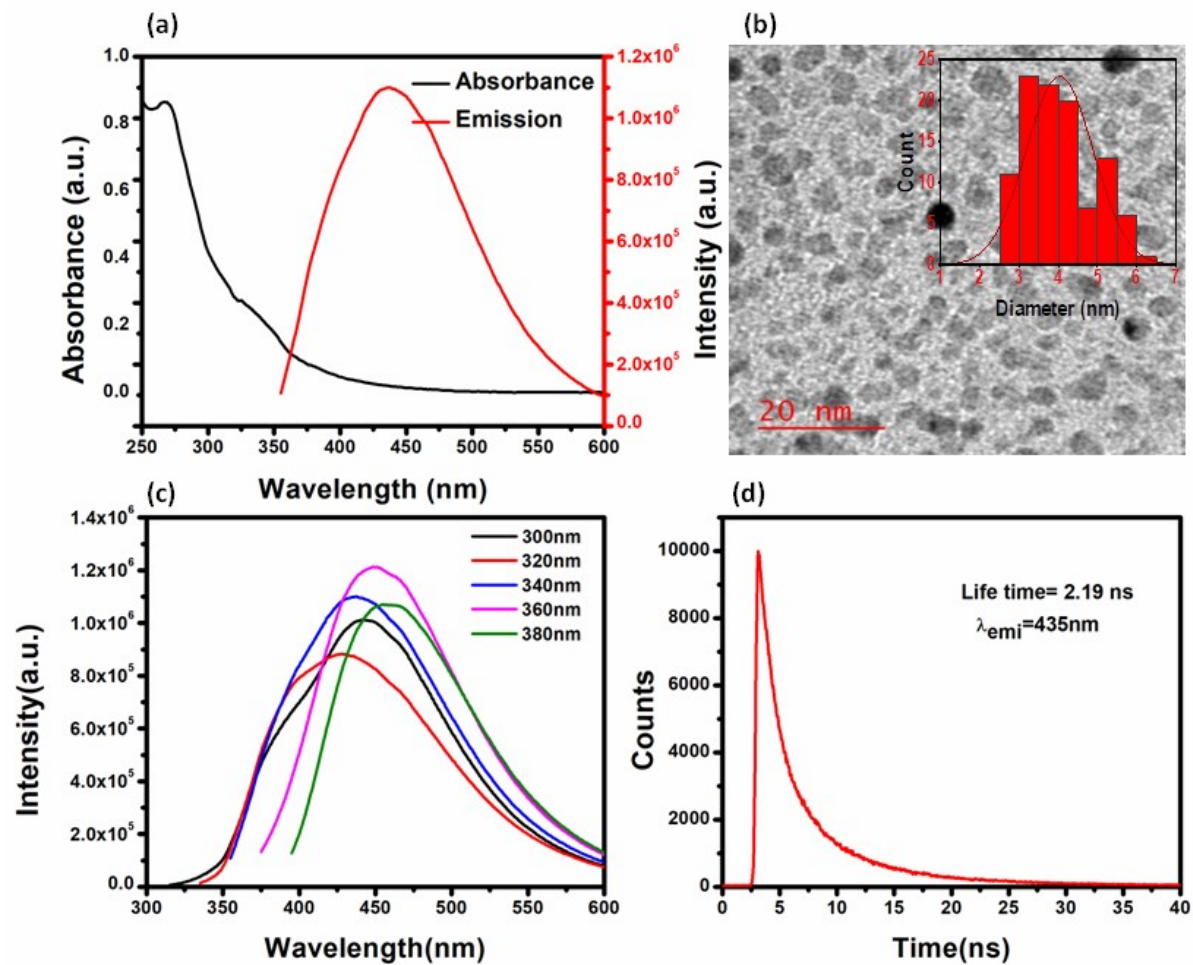


Fig. S2: Optical characterization of pH-2 PND (a) UV-Vis spectra and Emission spectrum at 340nm (b) TEM images of pH-2 PND; Histogram shows the particle distribution (c) Wavelength dependent emission spectra (d) Time resolved PL decay curves of pH-2 PND ($\lambda_{em} = 435$ nm)

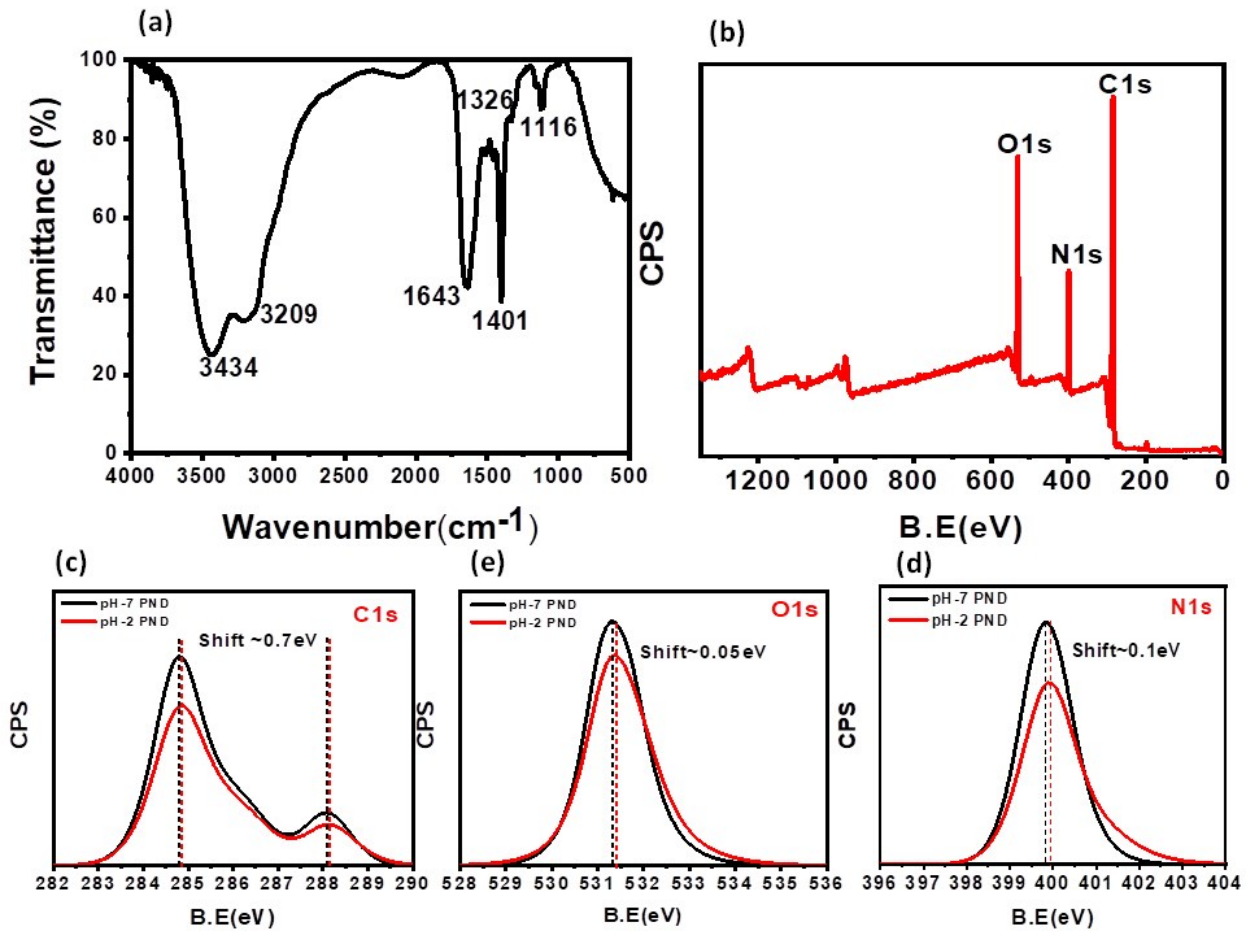


Fig. S3: (a) FTIR spectrum of pH-2 PND (b) Full scan XPS spectrum of pH-2 PND (c)- (d) shows the comparative shift in peak position of C1s, O1s and N1s of pH-7 and pH-2 PND.

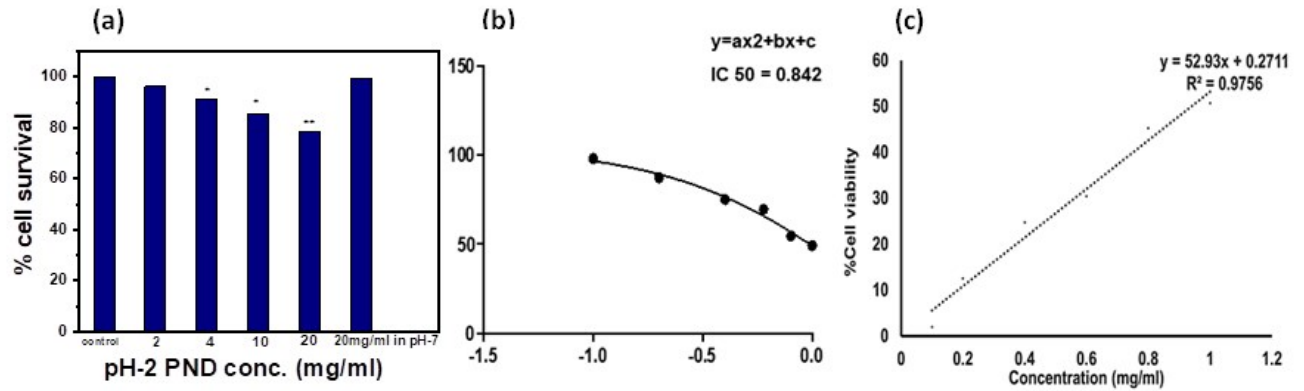


Fig. S4: (a) Concentration dependent cell viability of pH-2 PND for 24hr. * and ** showed the significance level of $p < 0.05$ and < 0.001 between control and after PND of different concentration administrated groups respectively. (b)- (c) Parabolic graph and linear graph of Mel dose dependent cell survival for IC_{50} value analysis.

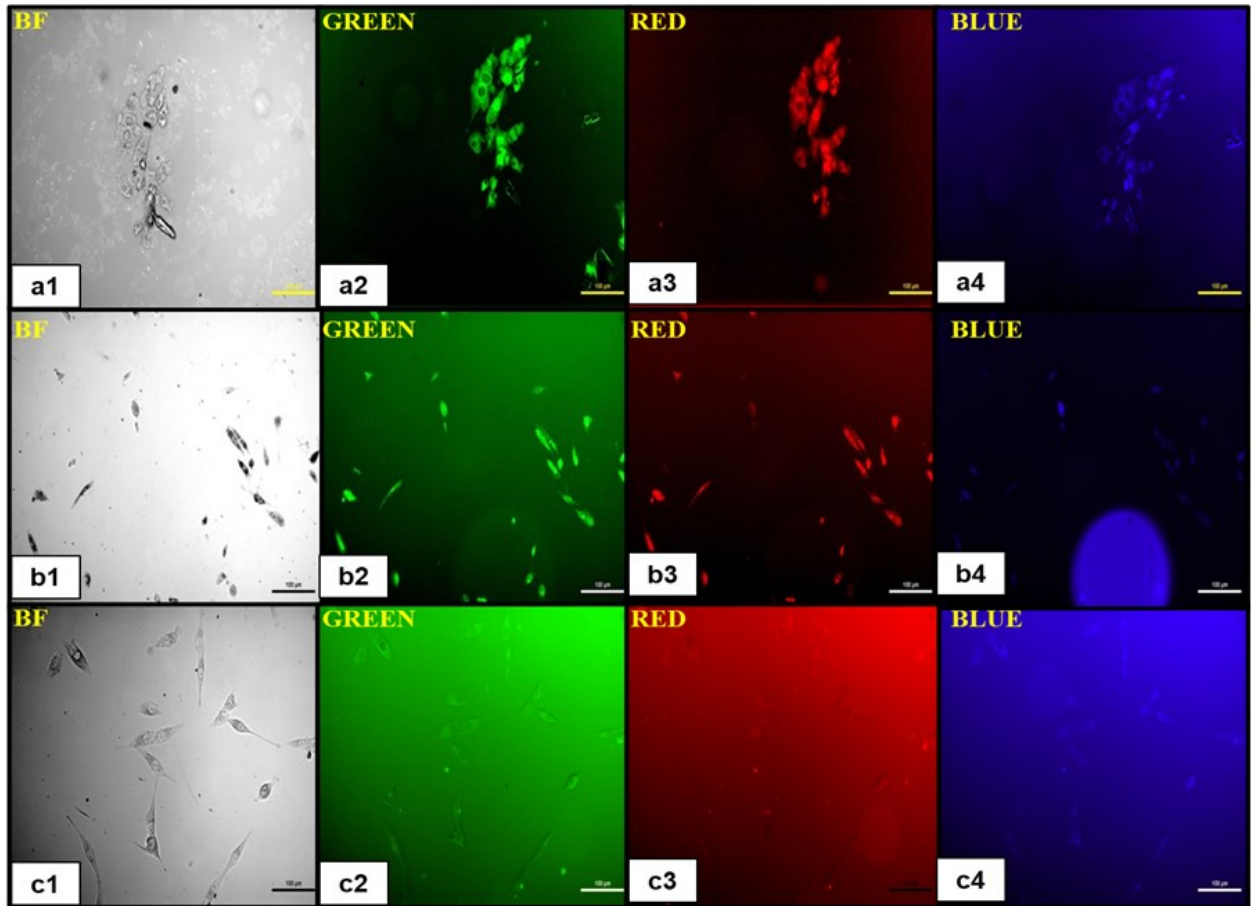


Fig S5 : Fluorescence imaging of pH-2 PNDs in different concentrations (a1-a4: 20mg/ml; b1-b4: 10mg/ml; c1-c4: 4mg/ml) in MDA-MB-231 breast cancer cells

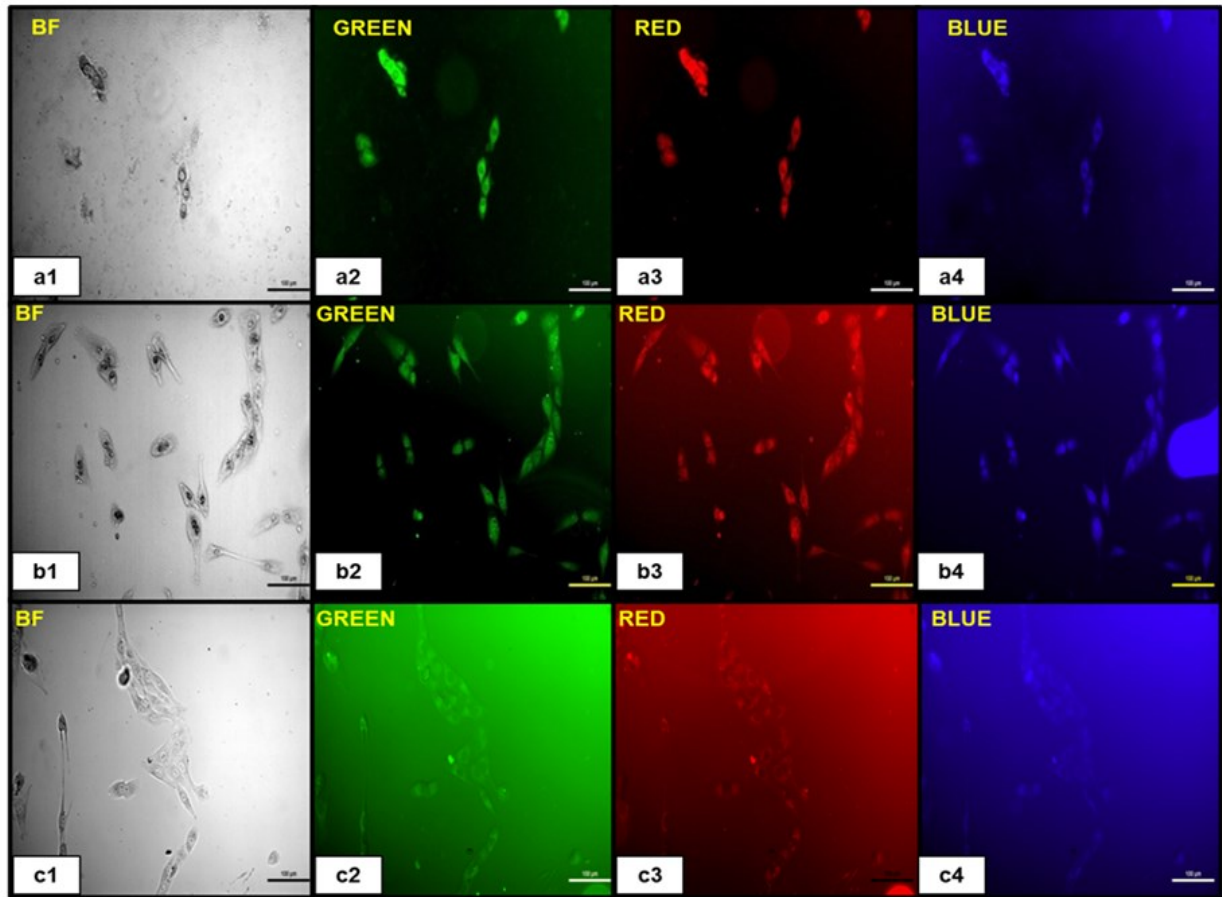


Fig. S6: Fluorescence imaging of pH-7 PNDs in different concentrations (a1-a4: 20mg/ml; b1-b4: 10mg/ml; c1-c4: 4mg/ml) in MDA-MB-231 breast cancer cells