

## Electronic Supplementary Information

### **Fundamental understanding of size and surface modification effects on $r_1$ relaxivity of Prussian blue nanocube@m-SiO<sub>2</sub>: a novel targeted chemo-photodynamic theranostic agent to treat colon cancer**

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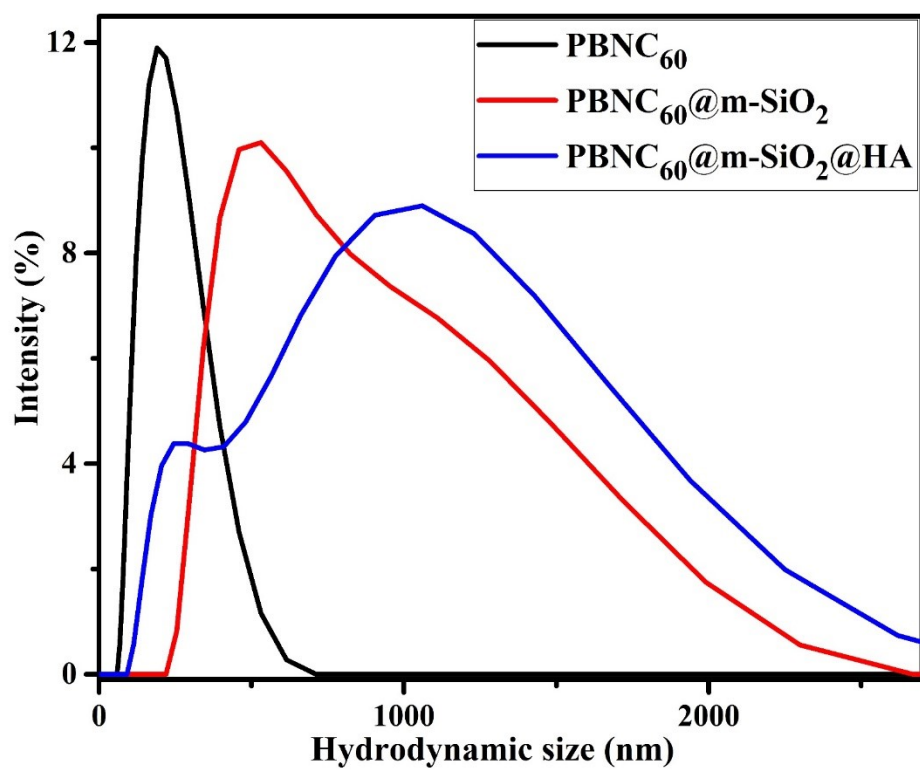
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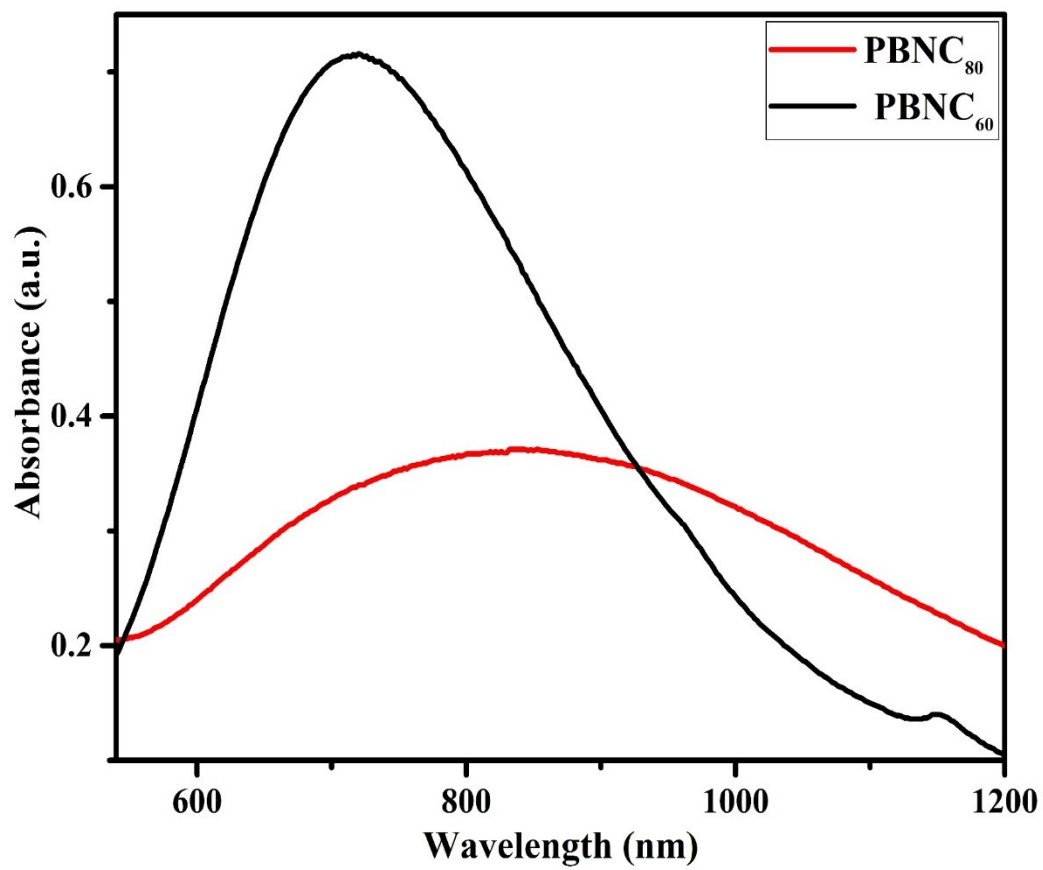
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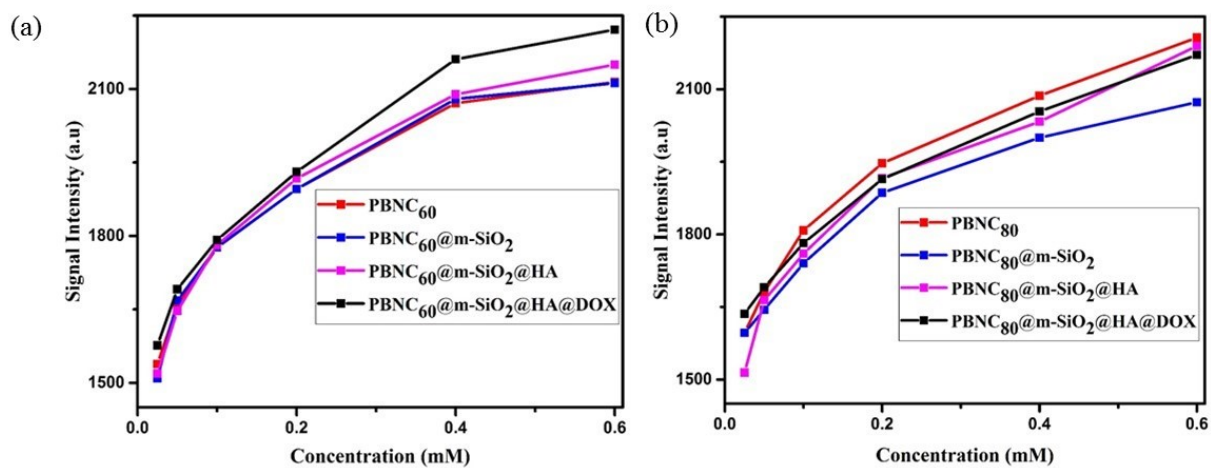
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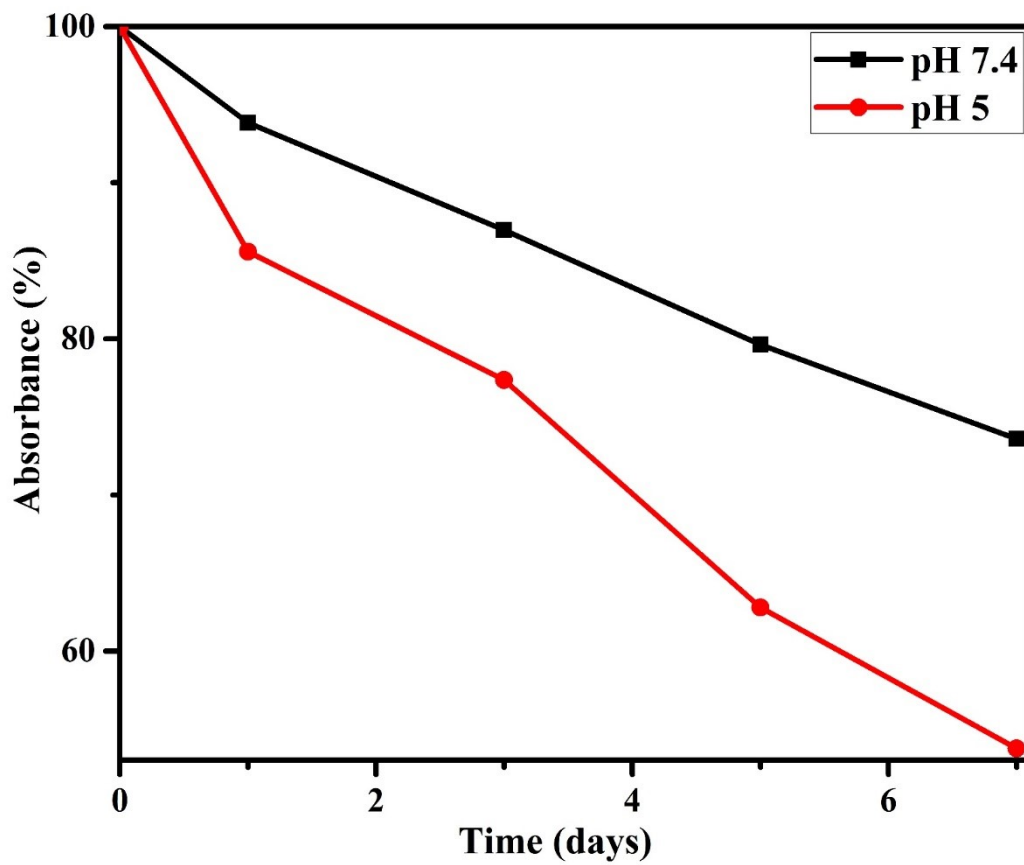
**Figure S1:** Variation of particle sizes of PBNC<sub>60</sub>, PBNC<sub>60</sub>@m-SiO<sub>2</sub>, PBNC<sub>60</sub>@m-SiO<sub>2</sub>@HA in aqueous medium through DLS.



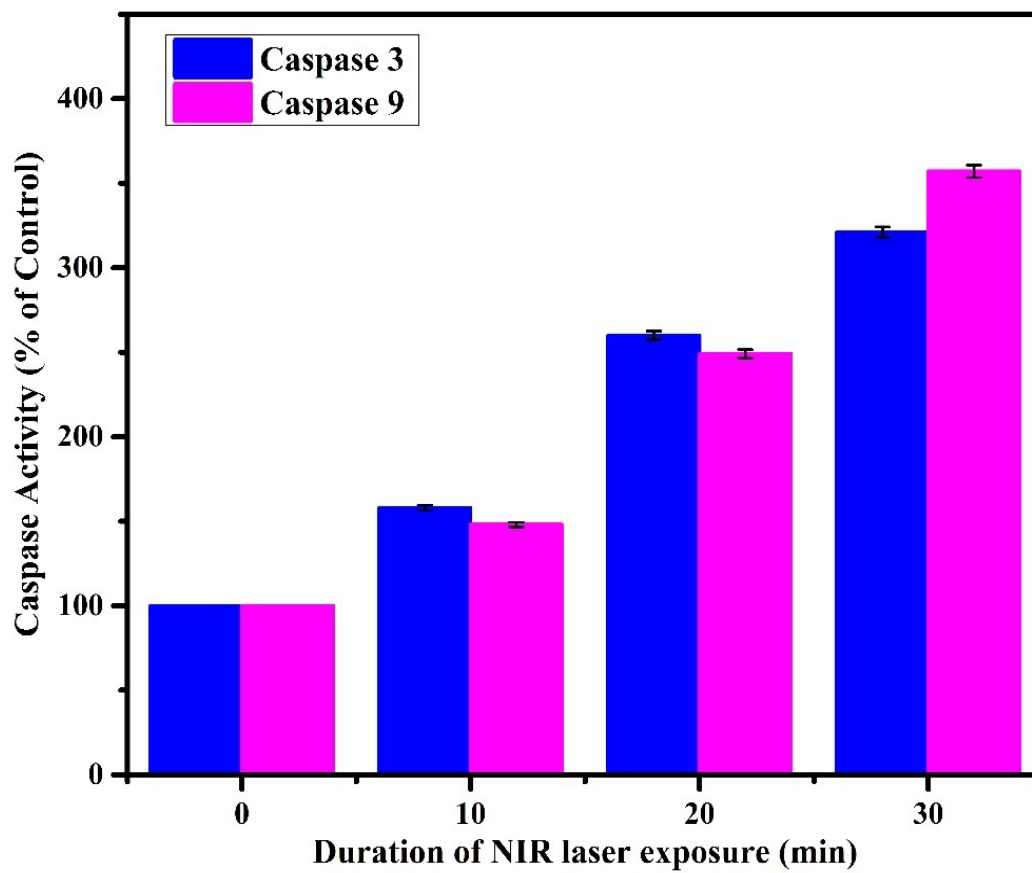
**Figure S2:** Red shifted absorption peak due to increase in particle size of pristine PBNC from optical measurement.



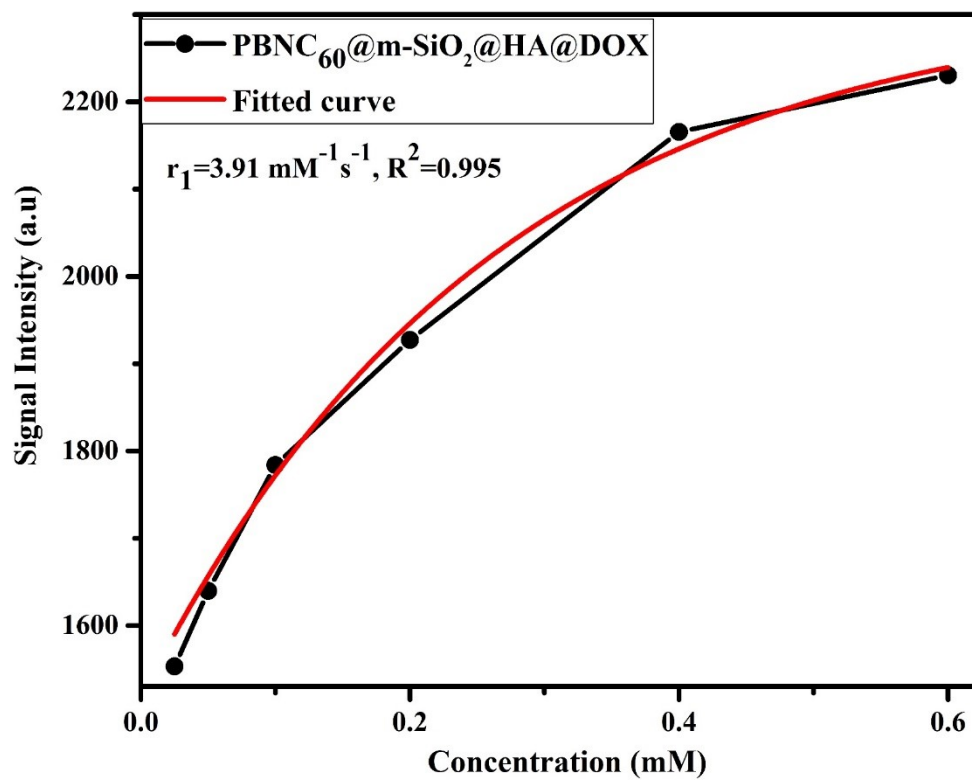
**Figure S3:** Determination of  $r_1$  relaxivity value of (a) PBNC<sub>60</sub> and (b) PBNC<sub>80</sub> after each step of modification in PBS.



**Figure S4:** Time dependent stability checking of PBNC<sub>60</sub>@m-SiO<sub>2</sub>@HA in pH 5 and 7.4.



**Figure S5:** Expression of caspase 3 and caspase 9 in PBNC<sub>60</sub>@mSiO<sub>2</sub>@HA@DOX (21 µg/mL) treated NIR irradiated (10, 20 and 30 min) HCT 116 cell line.



**Figure S6:** Plot for *in vitro*  $r_1$  relaxivity measurement in HCT 116 cell line after incubation with PBNC<sub>60</sub>@mSiO<sub>2</sub>@HA@DOX for 24 h.