

## Electronic Supplementary Information (ESI)

# **Photothermal conversion upon near-infrared irradiation of fluorescent carbon nanoparticles formed from carbonized polydopamine**

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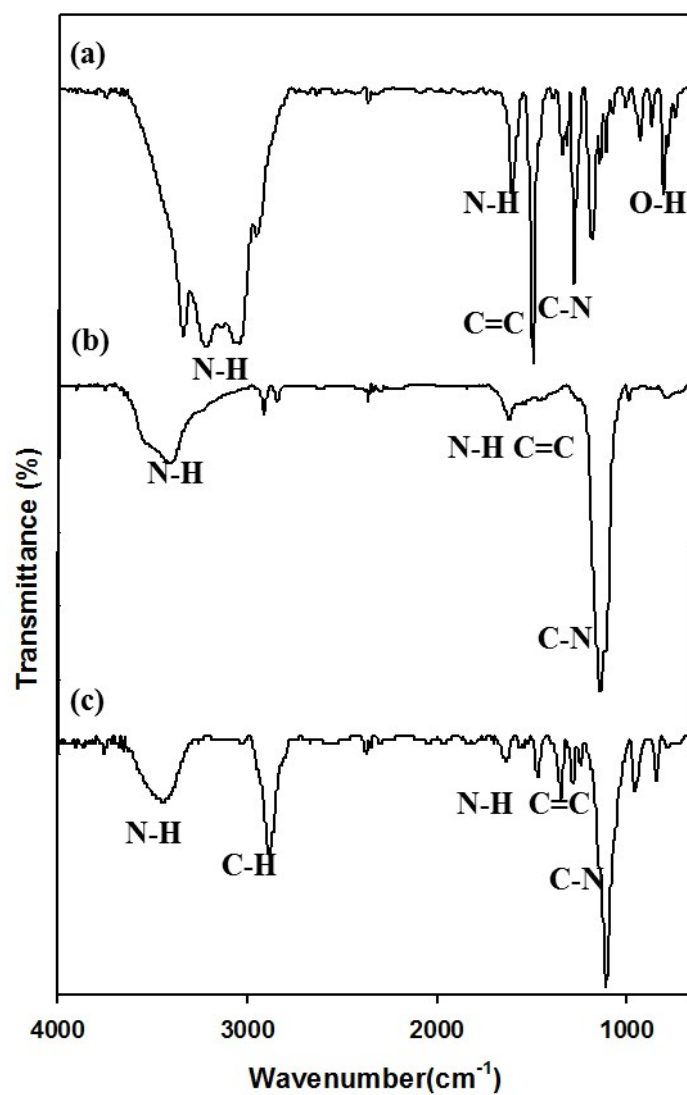
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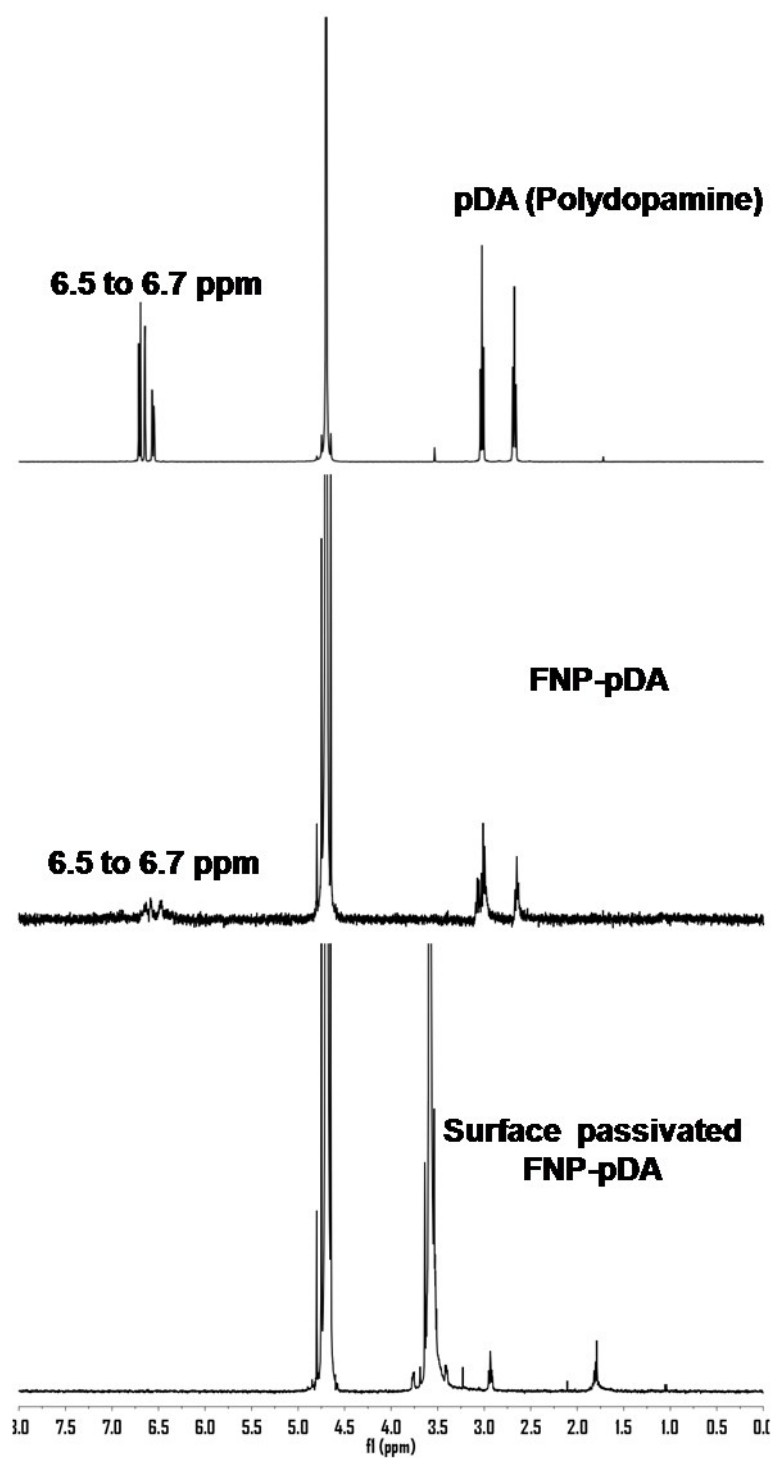
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### Author Contributions

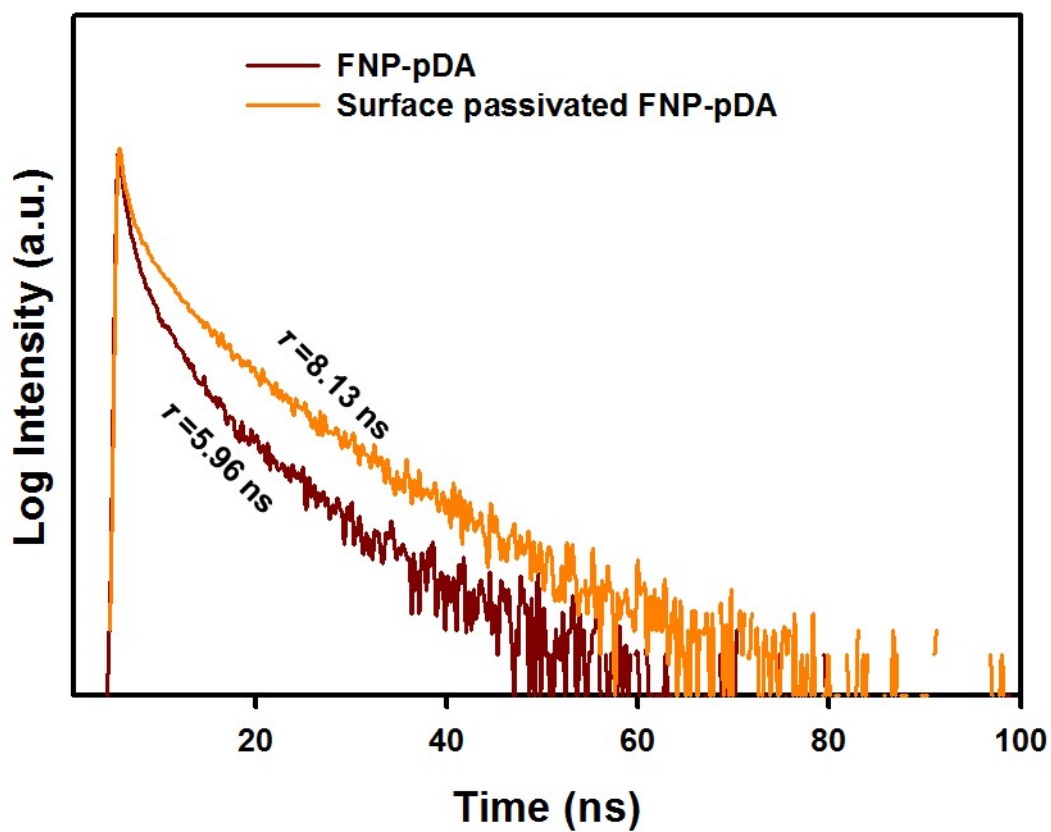
Sung Han Kim and Shazid Md. Sharker contributed equally to this work.



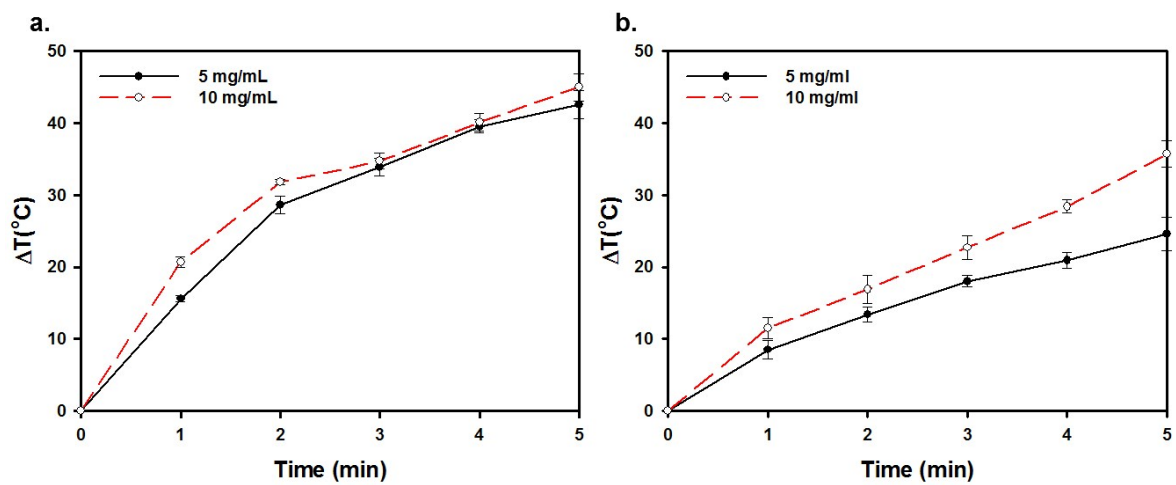
**Fig. S1** FT-IR characterization of (a) polydopamine (pDA), (b) FNP-pDA and (c) surface passivated FNP-pDA.



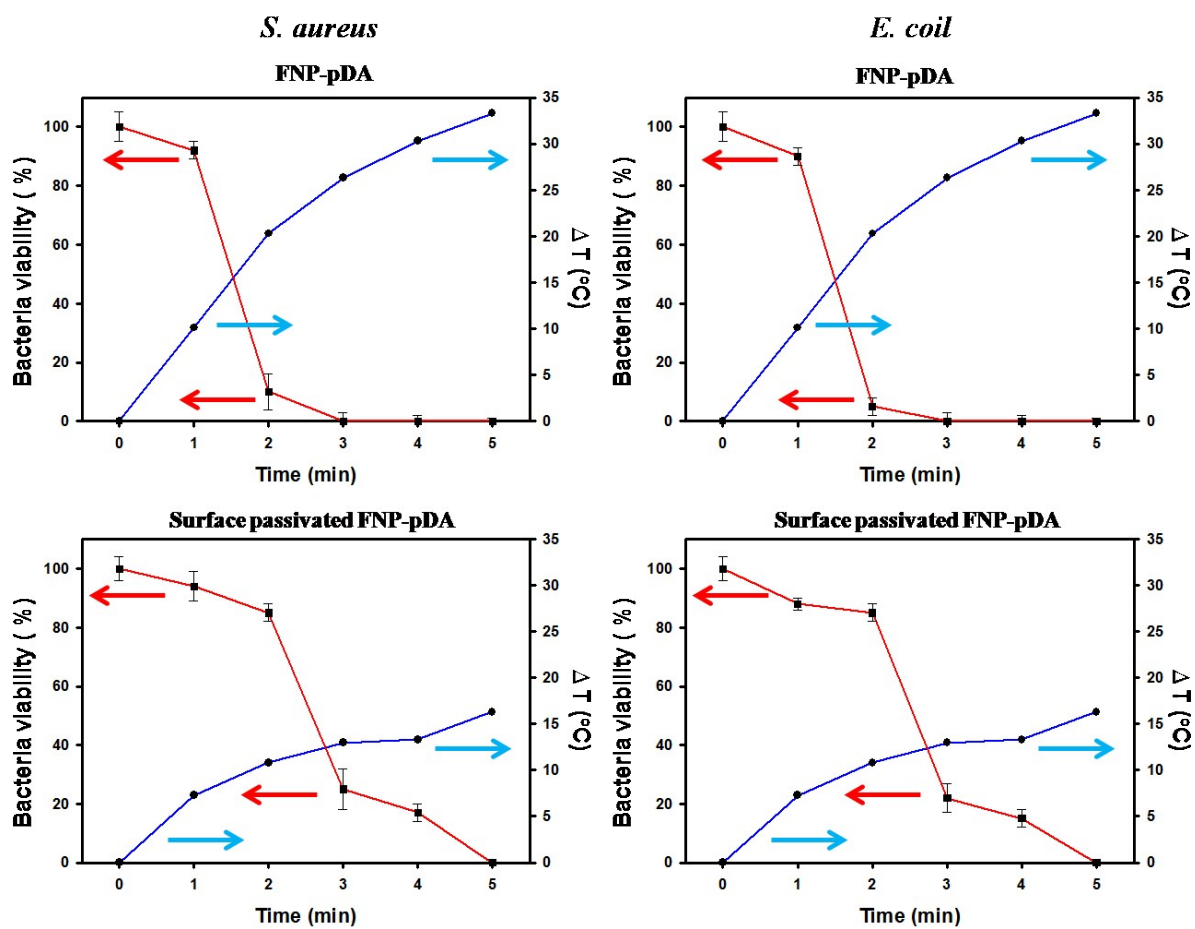
**Fig. S2**  $^1\text{H}$  NMR (400, MHz,  $\text{D}_2\text{O}$ ) spectroscopic analysis of polydopamine (pDA), FNP-pDA and surface passivated FNP-pDA.



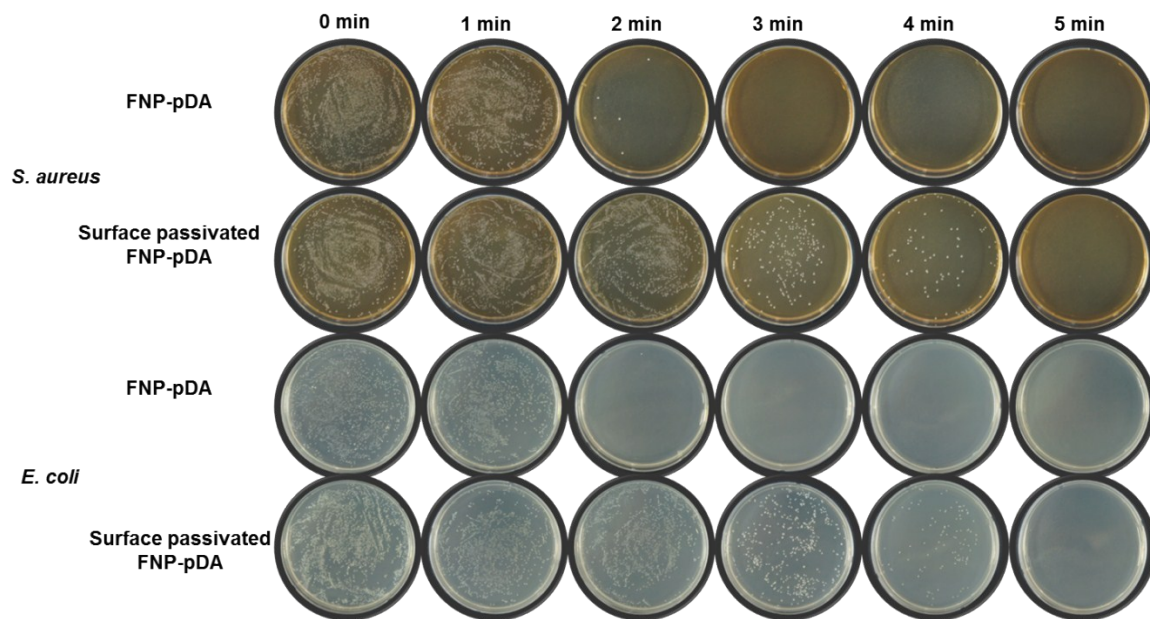
**Fig. S3** Fluorescence life time curve of FNP-pDA and surface passivated FNP-pDA in 375 nm wavelength. The  $\tau$  value indicates respective fluorescence lifetime.



**Fig. S4** The concentration dependent (5 and 10 mg/mL) photothermal conversion of (a) FNP-pDA and (b) surface passivated FNP-pDA in response to NIR light irradiation. The NIR laser was 808 nm and  $2\text{W}/\text{cm}^2$  power intensity.



**Fig. S5** The temperature and time (NIR irradiation) dependent the percentage of bacterial viability treated of (a, b) FNP-pDA and (c, d) surface passivated FNP-pDA incubate with *S. aureus* and *E. coli* bacteria, respectively.



**Fig. S6** The time (NIR irradiation) dependent the bacterial zone of inhibition (number) treated with FNP-pDA and surface passivated FNP-pDA in *S. aureus* and *E. coli* bacteria, respectively.