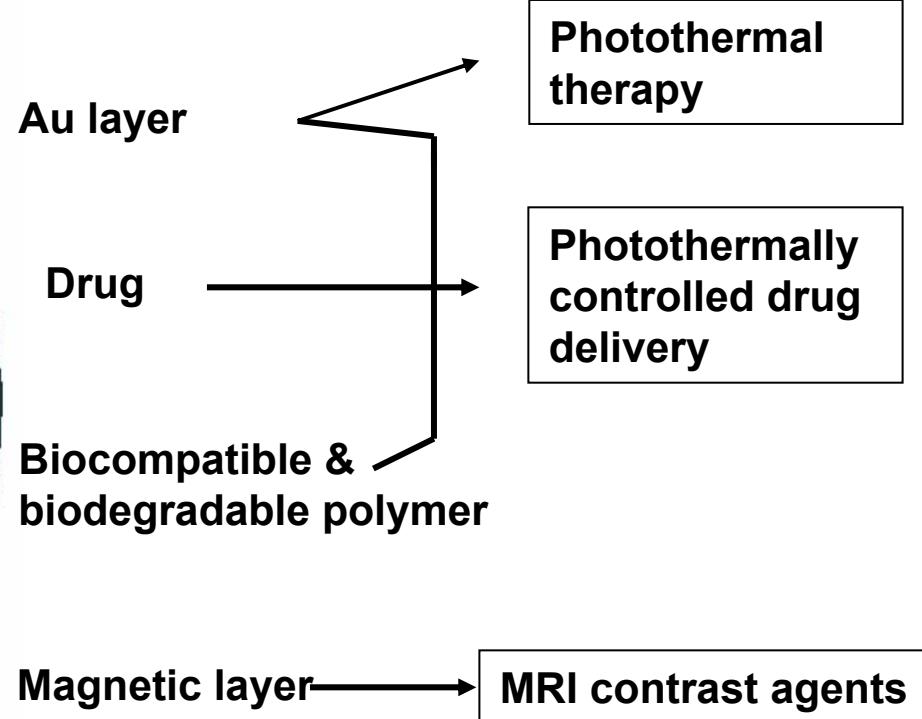
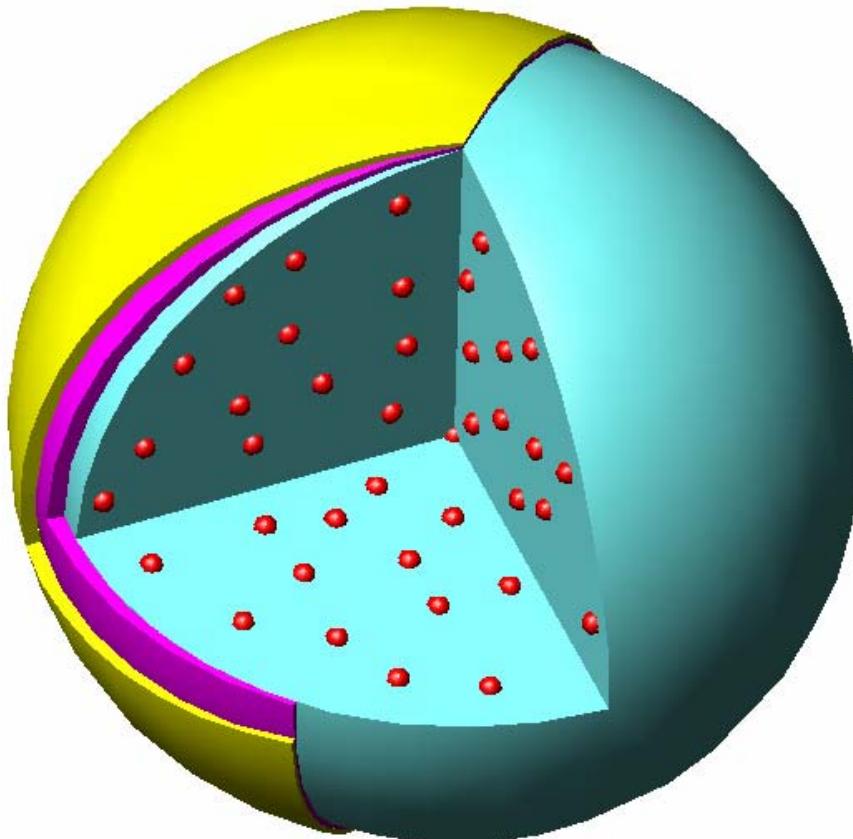


Multifunctional Nanoparticles for Photothermally Controlled Drug Delivery and Magnetic Resonance Imaging Enhancement

Kyung-Hwa Yoo
(Yonsei University)

Multifunctional Nanoparticle

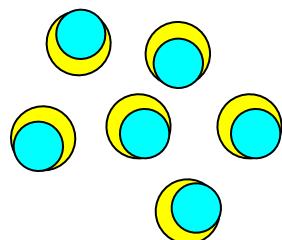


Au nanoshell

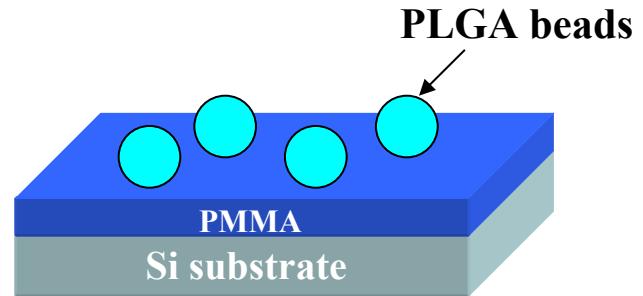
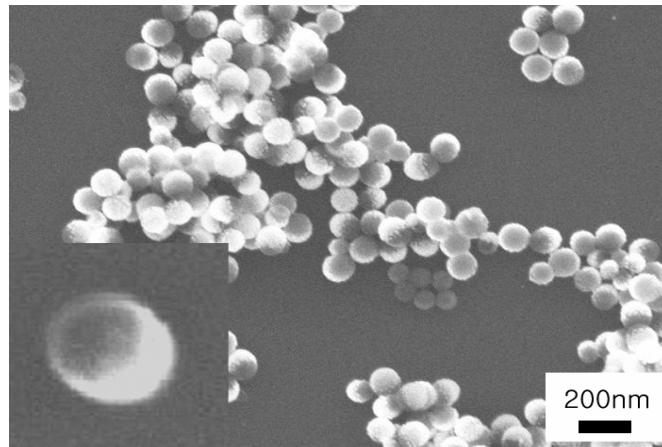


O₂ plasma

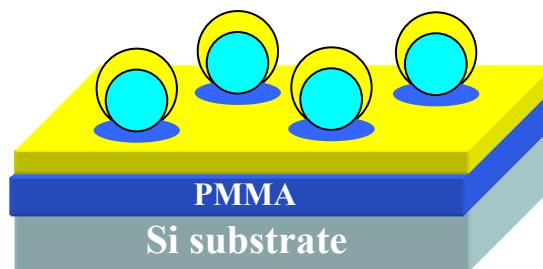
PS beads deposition



Lift-off



Au deposition



PLGA beads

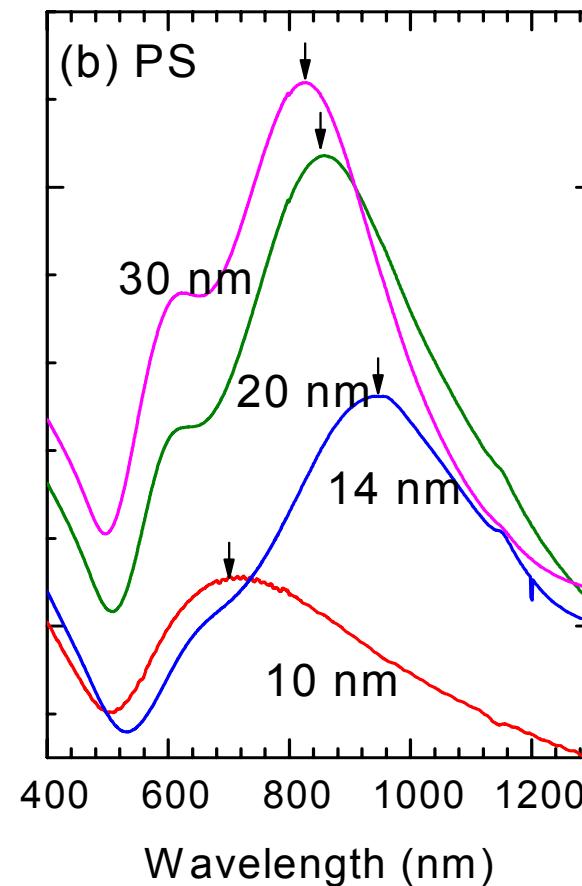
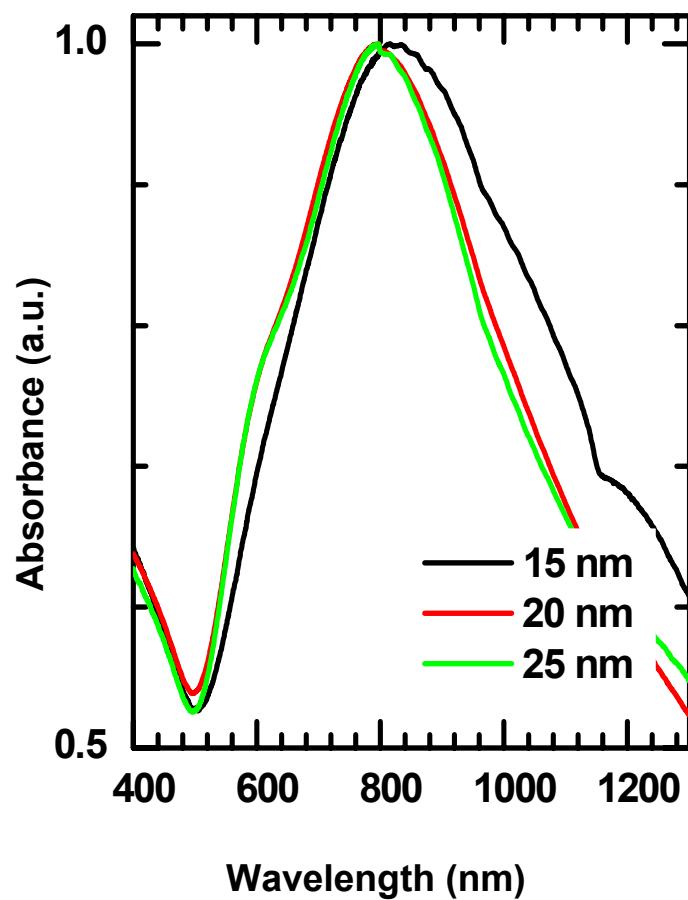


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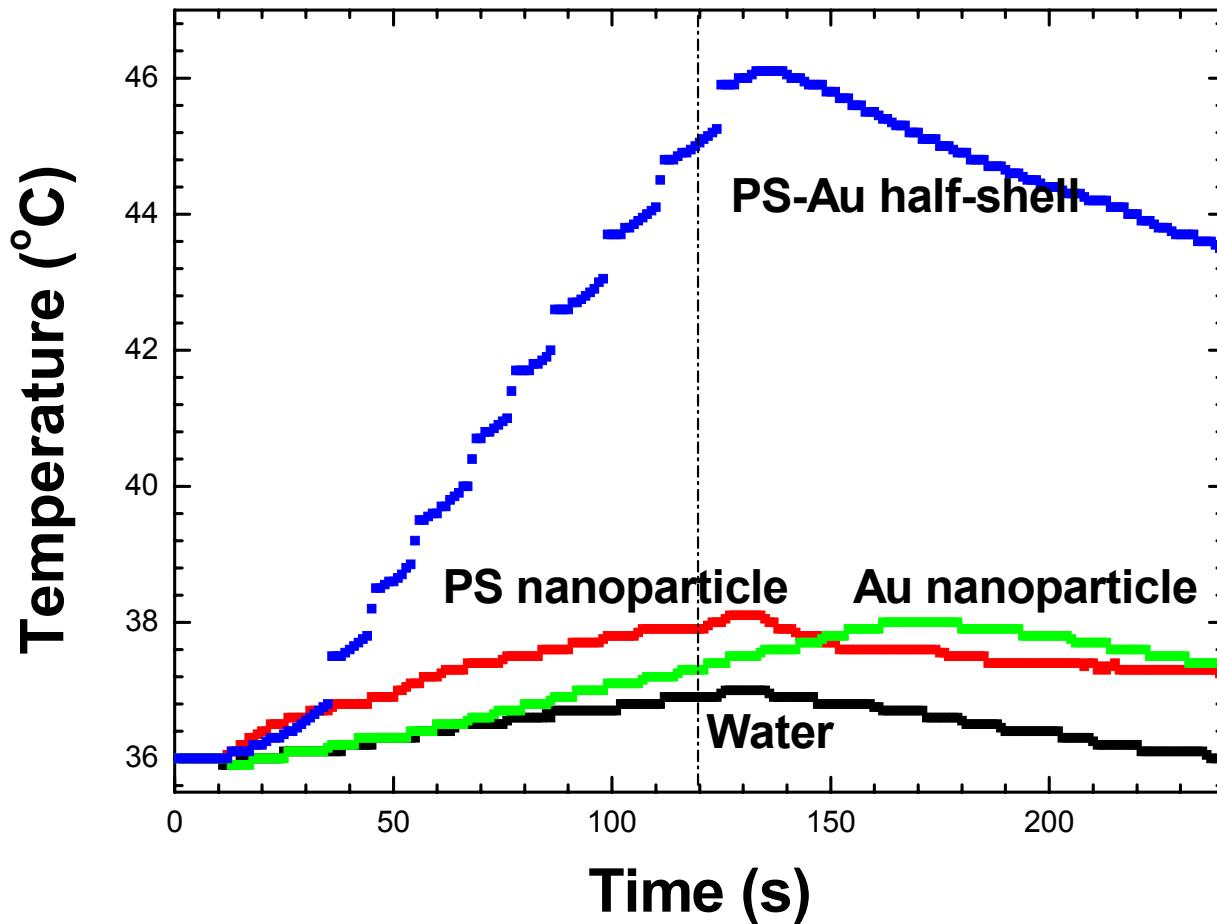


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Visible/NIR spectra

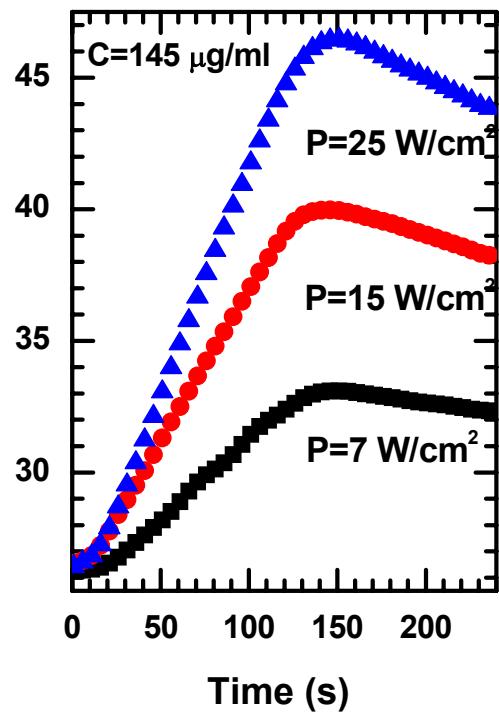


Hyperthermia

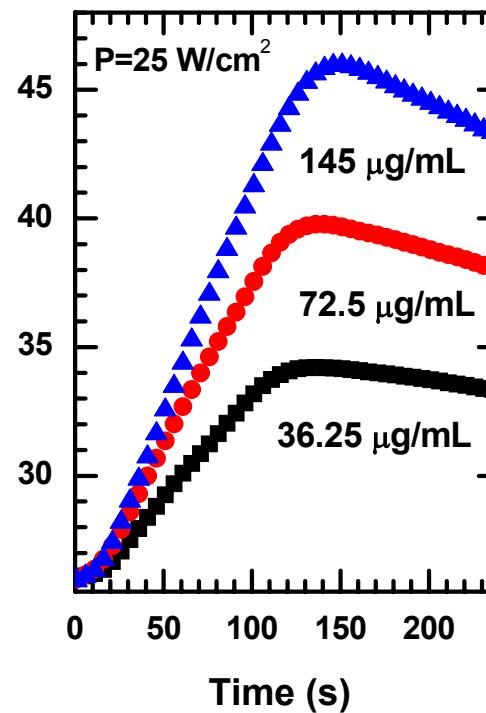


Hyperthermia

(a)

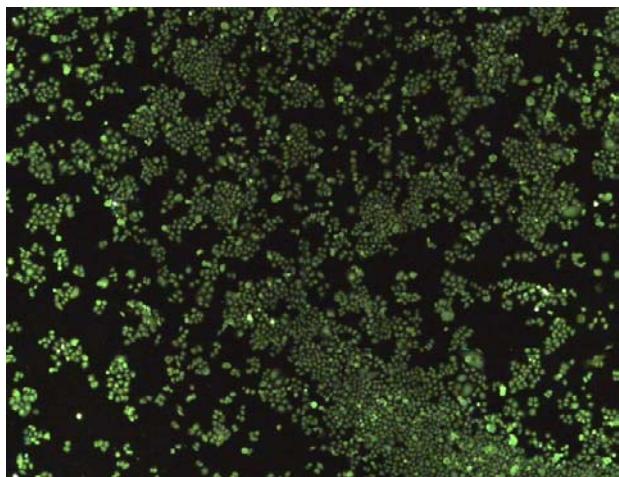


(b)

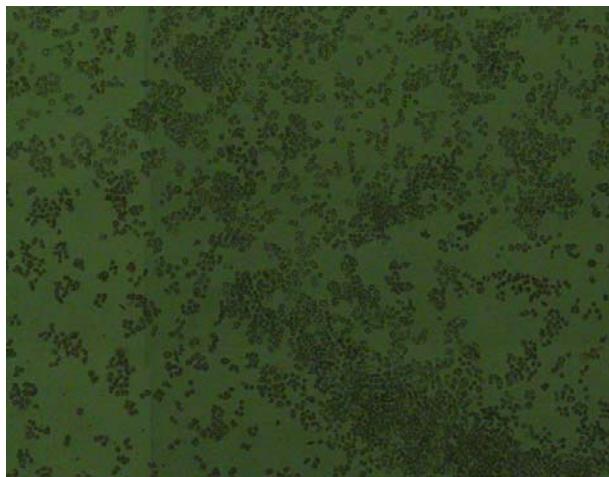


Photothermal toxicity (laser 15a)

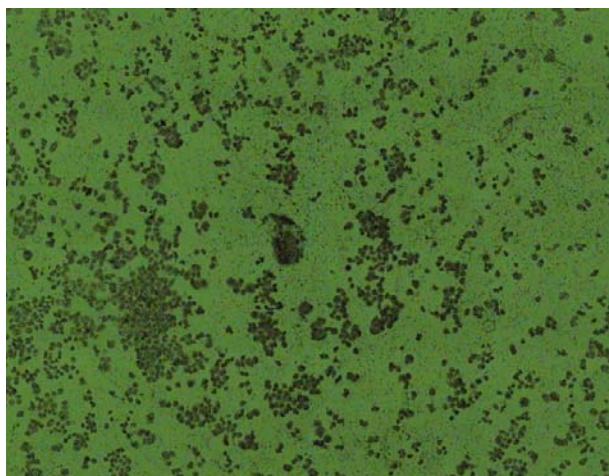
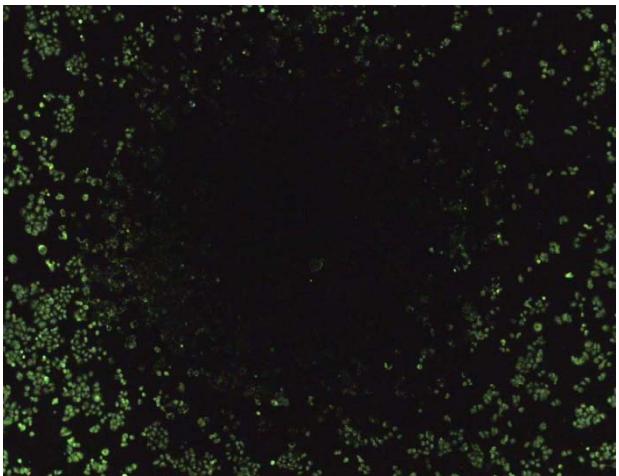
Calcein-AM



Bright field image

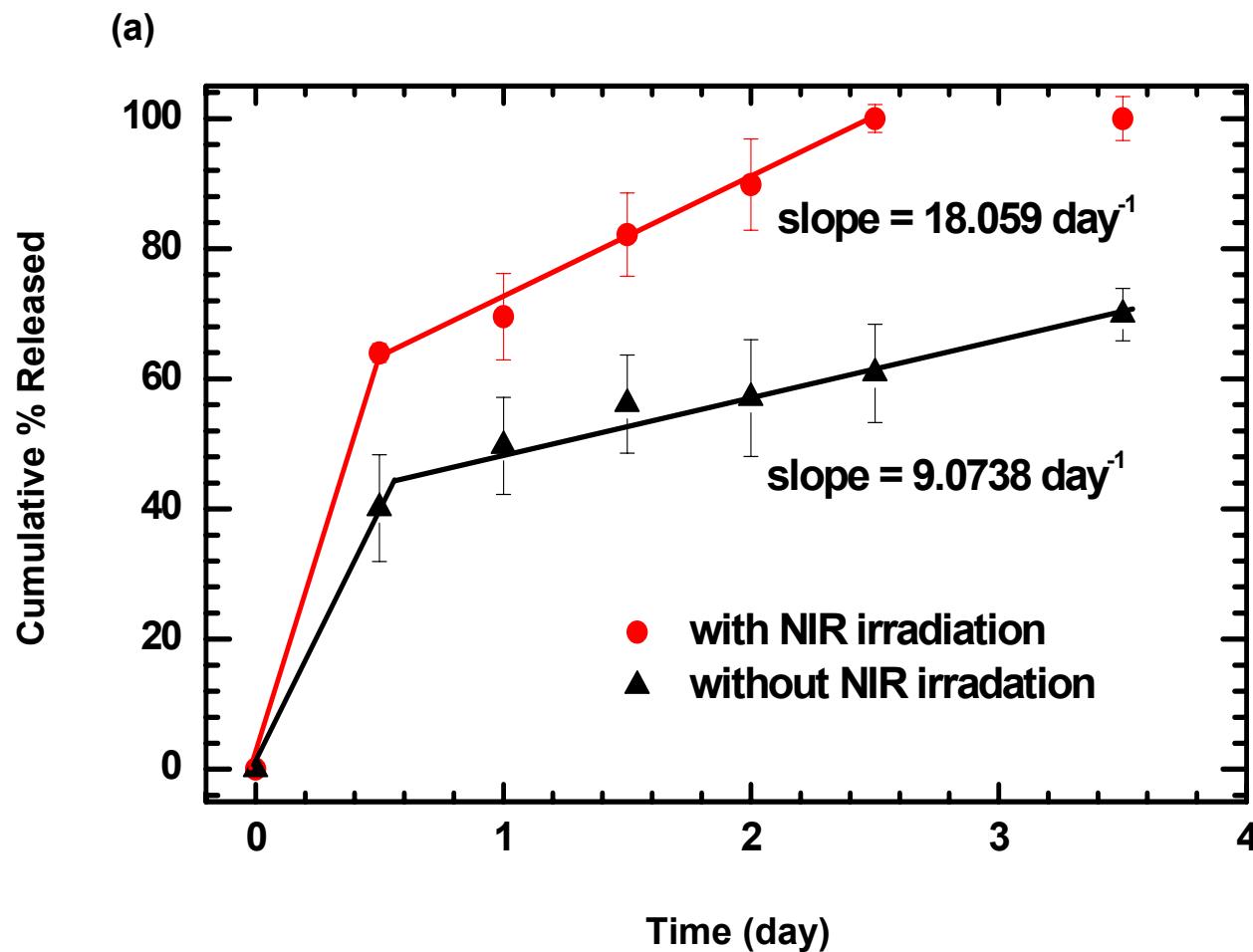


**Without particle
Laser
15a 50 min**

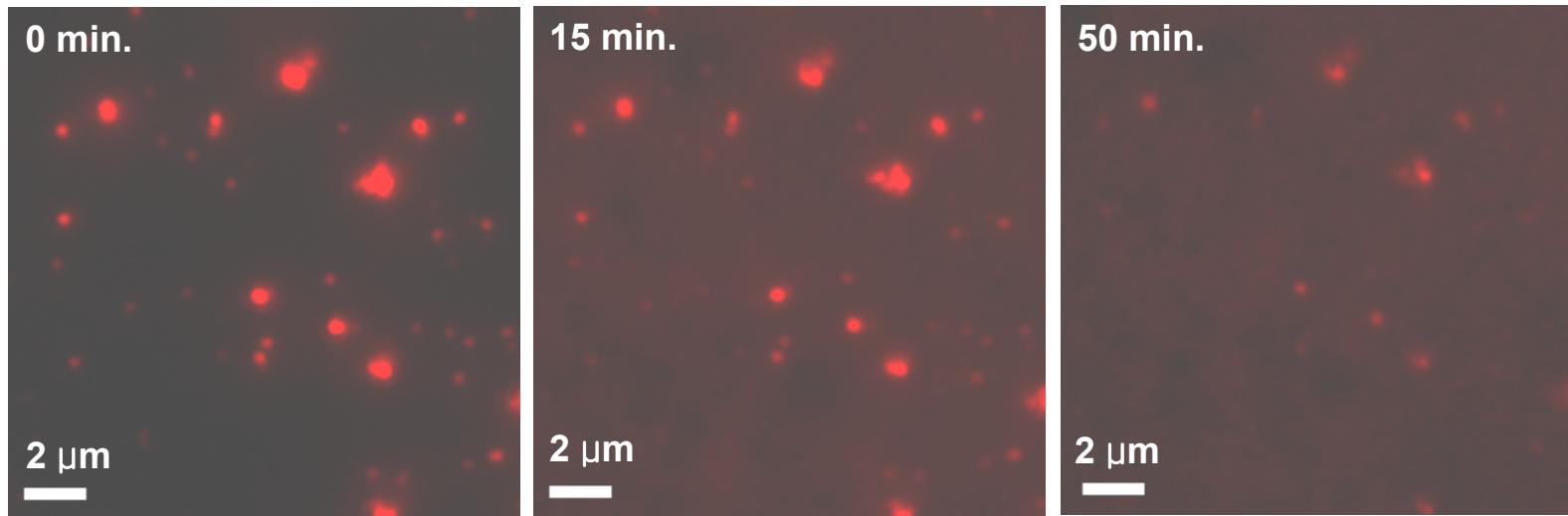


**With particle
incubation
(100ug/ml) 1 day
Laser
15a 15 min
50 min**

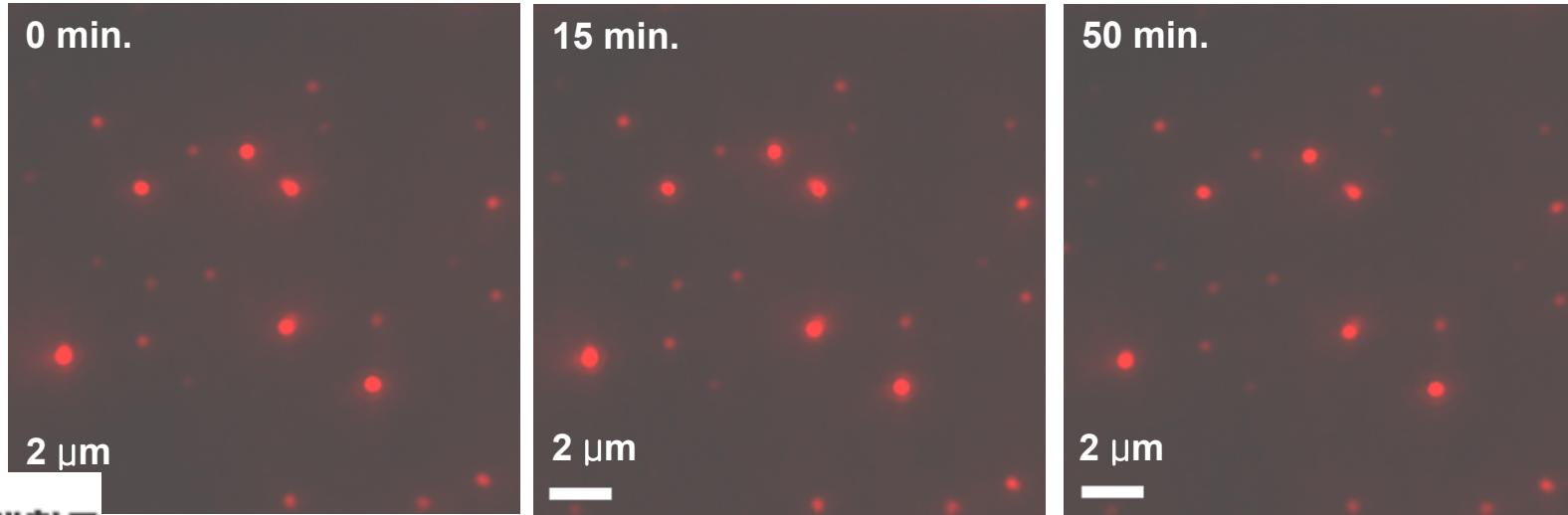
Drug Release with & without NIR irradiation



(b) With NIR illumination



(b) Without NIR illumination



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TIRFM images

(a)

0 min.

10 min.

15 min.

50 min.

300 nm

(b)

0 min.

10 min.

15 min.

50 min.

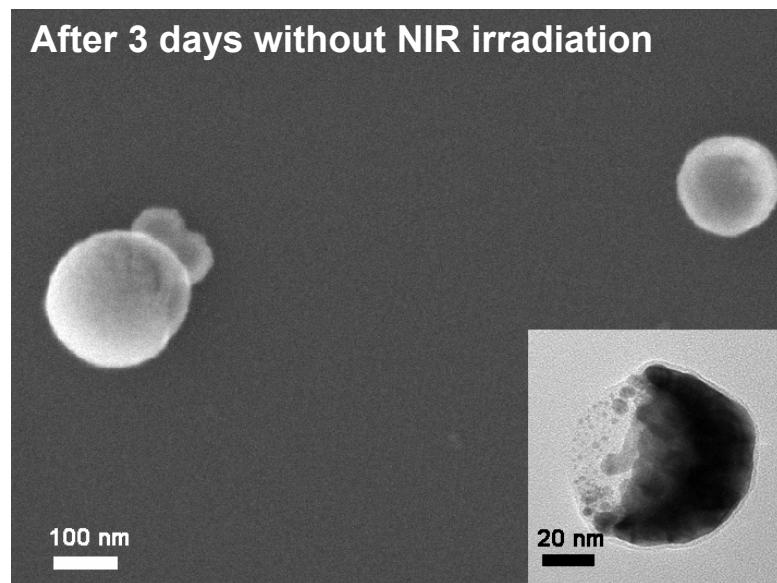
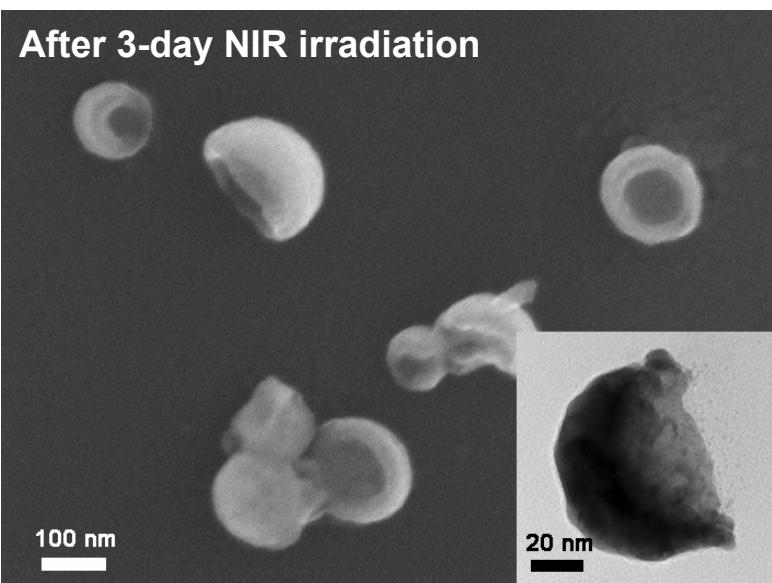
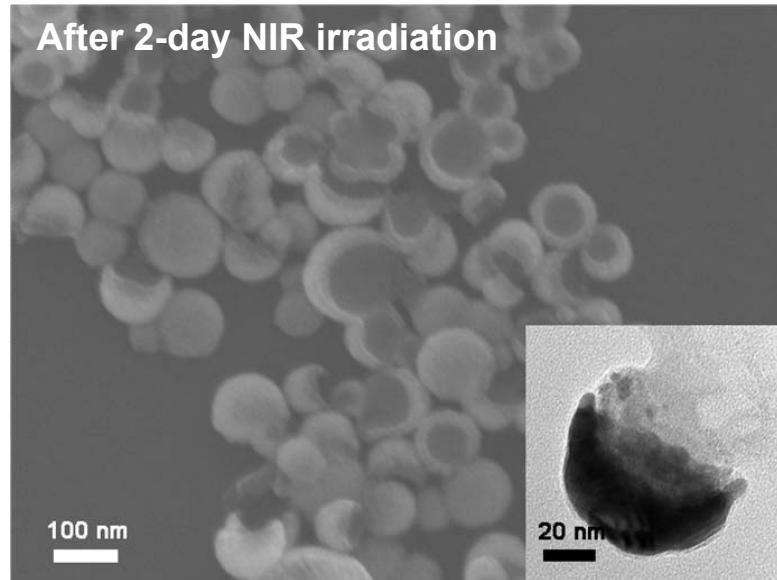
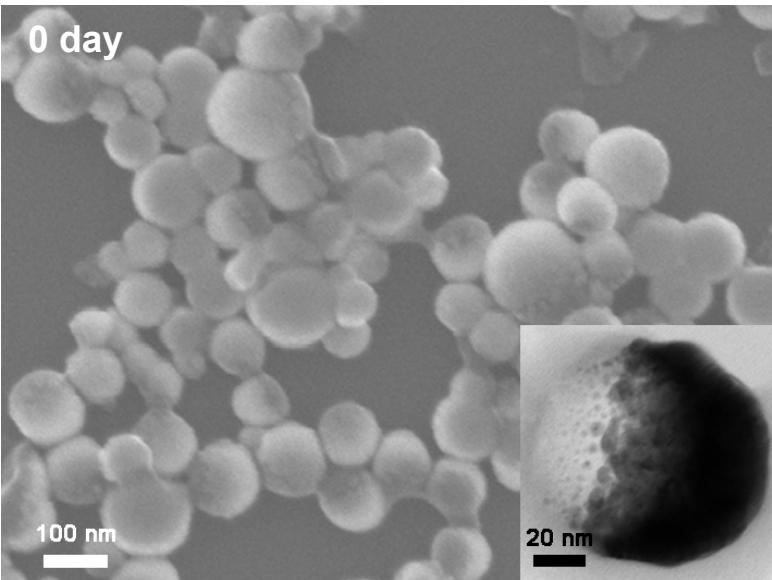
300 nm



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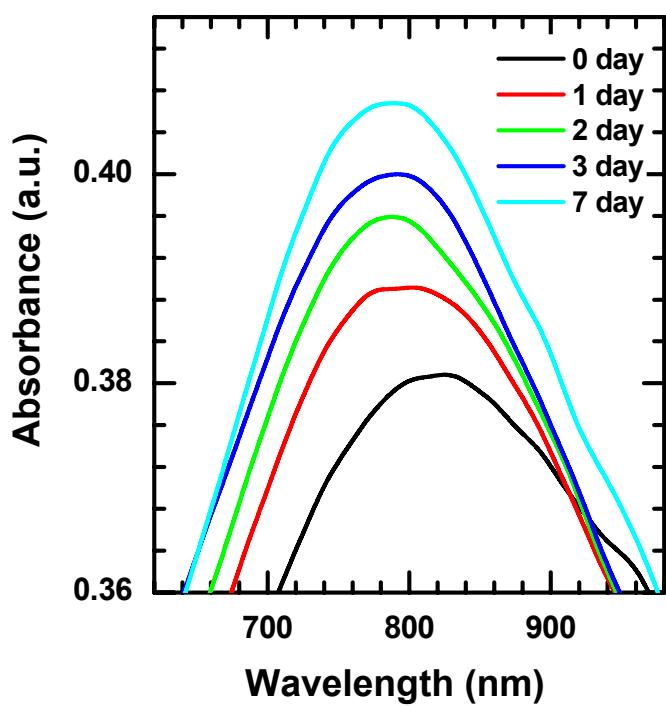


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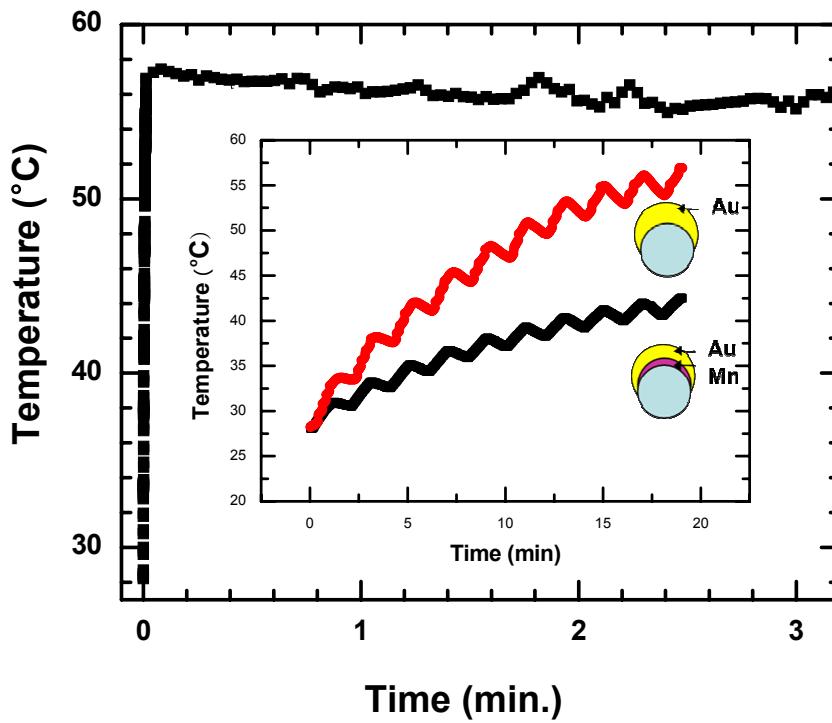


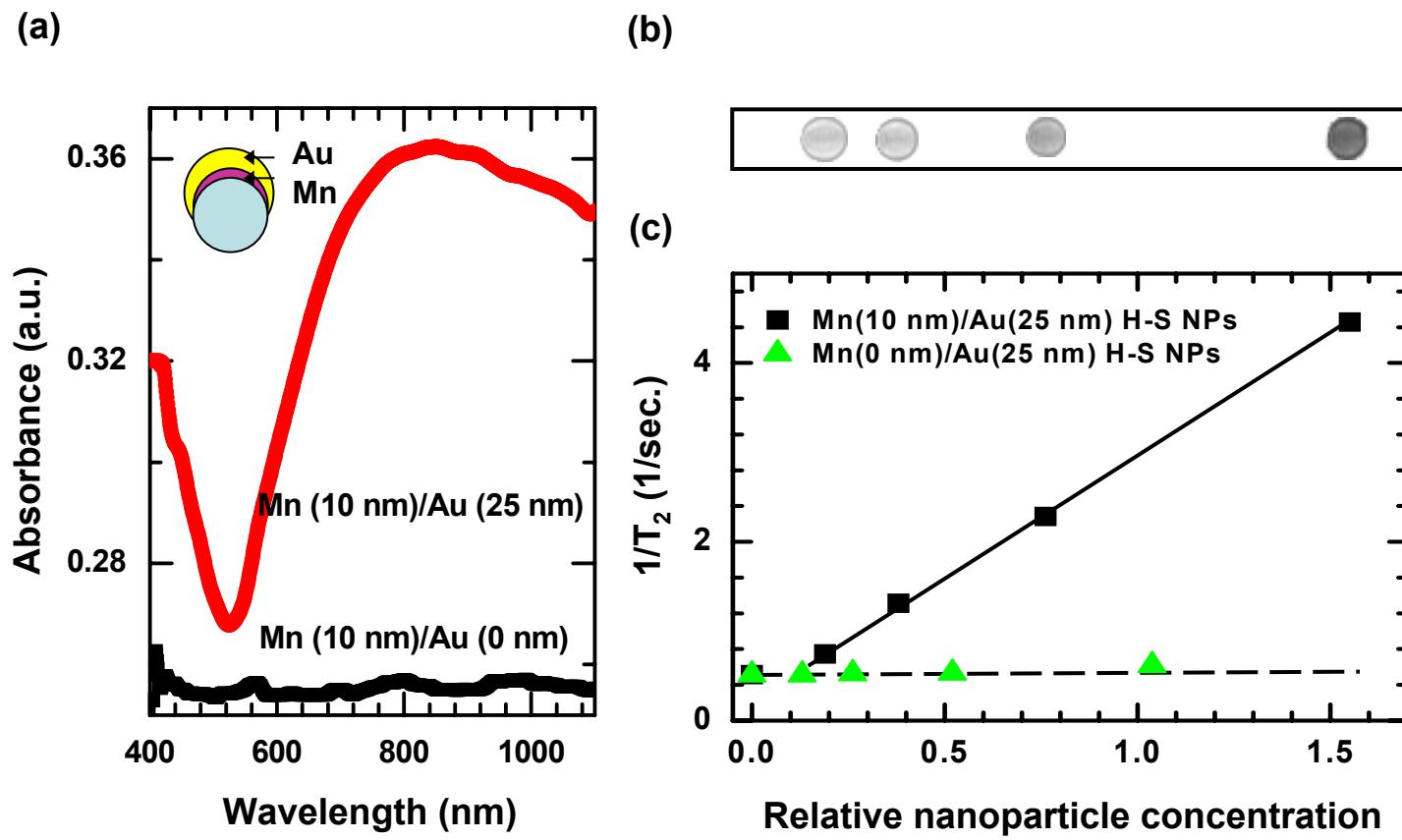
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(a)



(b)





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(Dept. of Radiology)**

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