*Electronic Supplementary Information*

# Sub 6 nanometer plasmonic gold nanoparticle for pH-responsive near-infrared photothermal cancer therapy

**Sekyu Hwang,[a] Jutaek Nam,[a] Jaejung Song,[b] Sungwook Jung,[b] Jaehyun Hur,[c] Kyuhyun Im,[d] Nokyoung Park[d] and Sungjee Kim[*a,b]**

[a] *Department of Chemistry, Pohang University of Science & Technology, San 31, Hyojadong, Namgu, Pohang 790-784, South Korea, Fax: +82-279-1498; Tel:+82-279-2108; E-mail: Sungjee@postech.ac.kr*

[b] *School of Interdisciplinary Bioscience and Bioengineering, Pohang University of Science & Technology, San 31, Hyojadong, Namgu, Pohang 790-784, South Korea.*

[c] *Department of Chemical and Biological Engineering, Gachon University, Seongnam, Gyeonggi 461-701, Korea.*

[d] *Frontier Research Laborotory, Samsung Advanced Institute of Technology, Samsung Electronics, Yongin, Kyunggi-do 446-712, South Korea.*

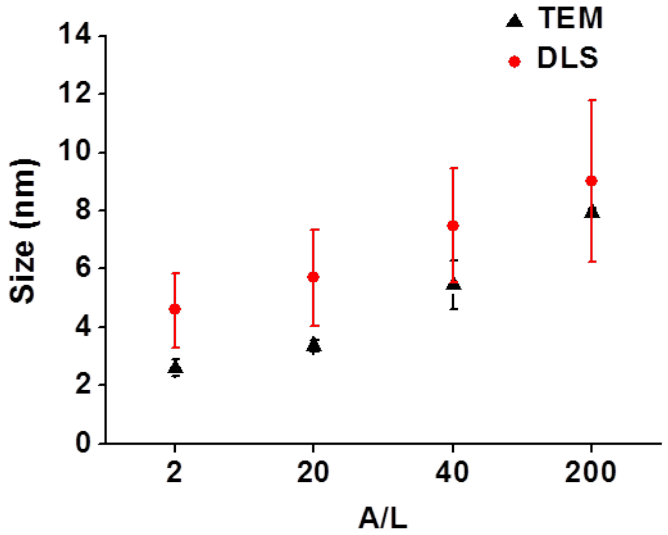


**Figure S1**. Average core diameters (TEM) and HD diameters (DLS) of SSANs measured with regard to A/L.

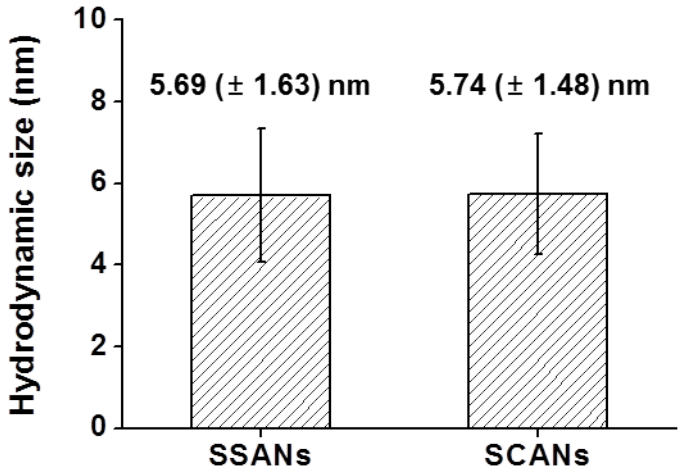


**Figure S2**. Hydrodynamic size of SSANs and SCANs.

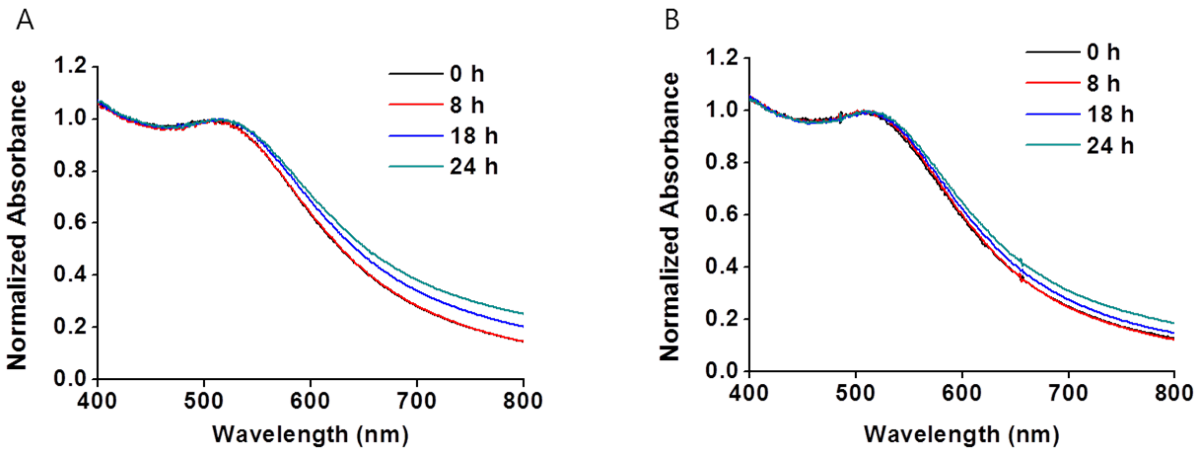


**Figure S3**. Absorption spectra of SSANs (A) and SCANs (B) dispersed in cell culture medium and incubated over 24 h at 37℃ under 5% $CO_2$.

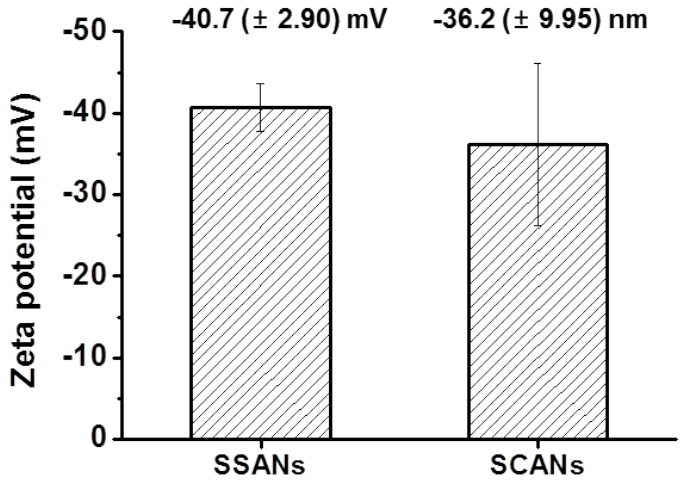


**Figure S4**. Zeta potential measurements of SSANs (left) and SCANs (right).

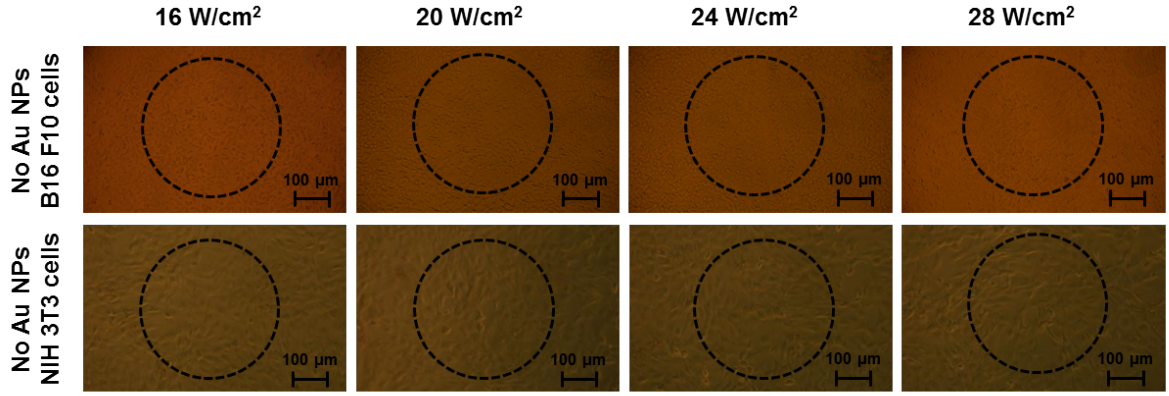


**Figure S5**. Trypan blue cell mortality test for B16 F10 cells (first row) and NIH 3T3 cells (second row) after laser irradiations for 5 mins at power densities of 16, 20, 24, and 28 W/cm$^2$, from left to right columns. Circles denote the position of laser spot.