Supporting Information

Real-time tracking of autophagy process in living cells using plasmonically enhanced Raman spectroscopy of fucoidan-coated gold nanoparticles

*Hongje Jang[a,b], Kyungtae Kang[c] and Mostafa A. El-Sayed[a]**

[a]Laser Dynamics Laboratory, School of Chemistry and Biochemistry, Georgia Institute of Technology, Atlanta, Georgia 30332, United States

[b]Department of Chemistry, Kwangwoon University, 20 Gwangun-ro, Nowon-gu, Seoul, Republic of Korea

[c]Department of Applied Chemistry, Kyung Hee University, Yongin, Gyeonggi 446-701, Republic of Korea

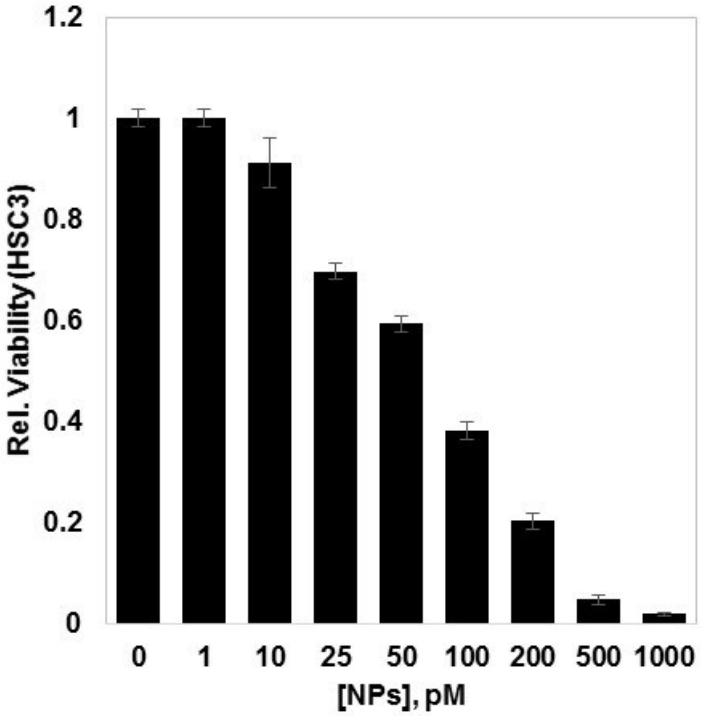

Figure S1. XTT cell cytotoxicity assay of HSC3 cells against various concentrations of Fu-AuNPs.

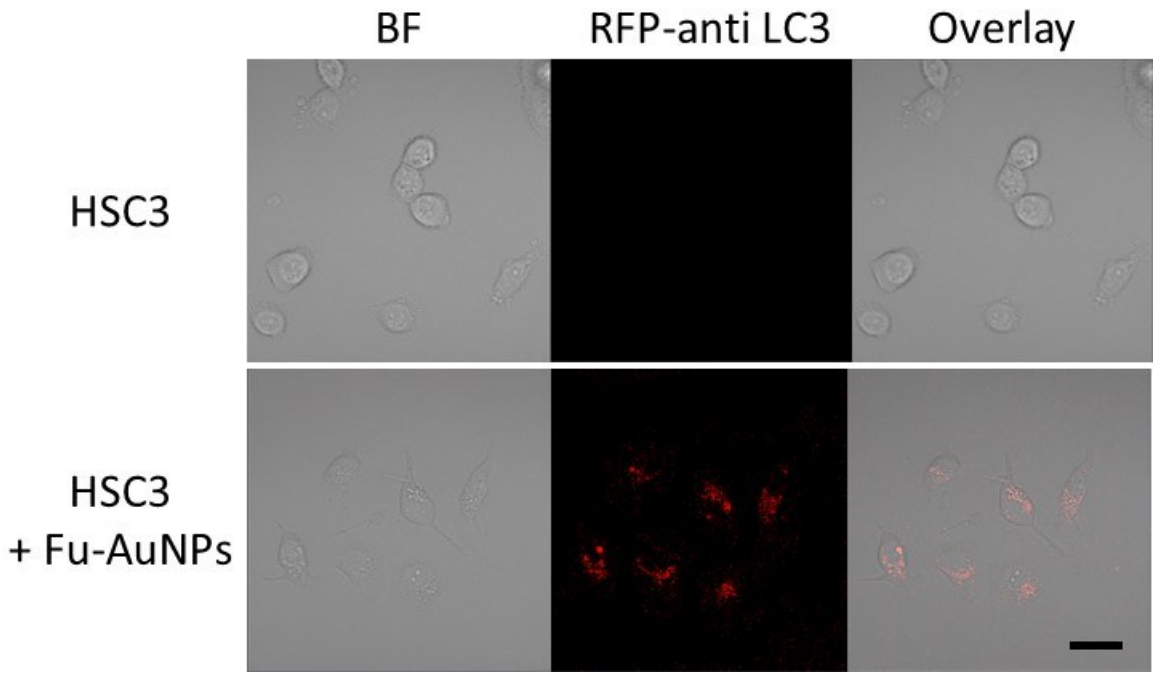

Figure S2. Confirmation of autophagy induction by Fu-AuNPs. RFP-anti-LC3 antibodies were bound to LC3 receptors on the autophagosome membrane and allowed to be observed ty fluorescence microscopy. The scale bar is 20 μm.

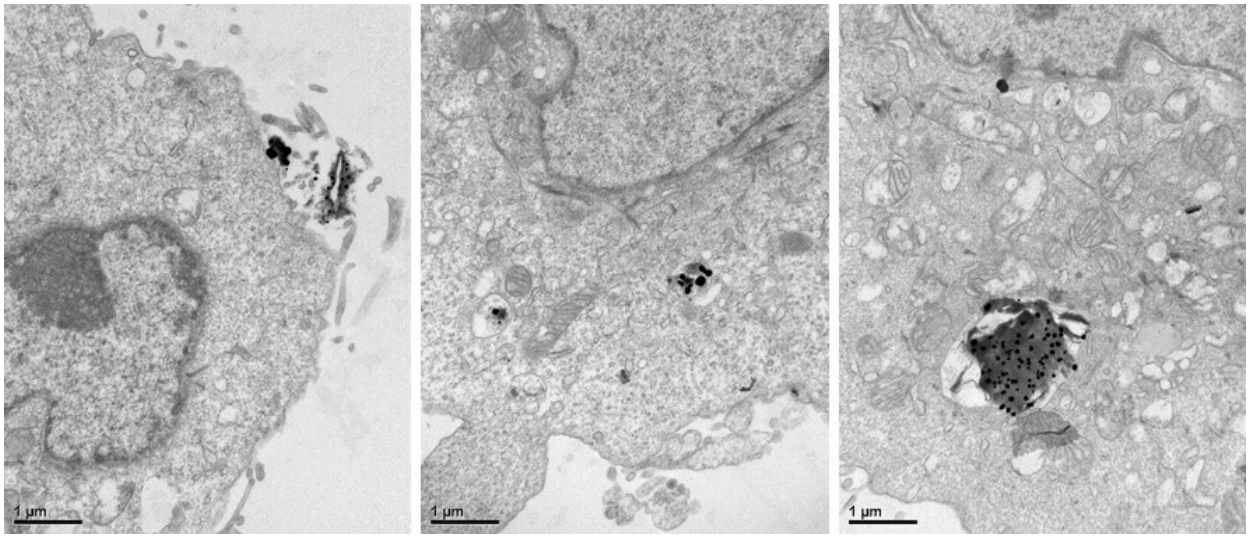

Figure S3. Bio-TEM images of Fu-AuNPs during cellular surface approaching (left), endosome entrapping (middle), and accumulation in endosome (right). The scale bar is 1 μm.

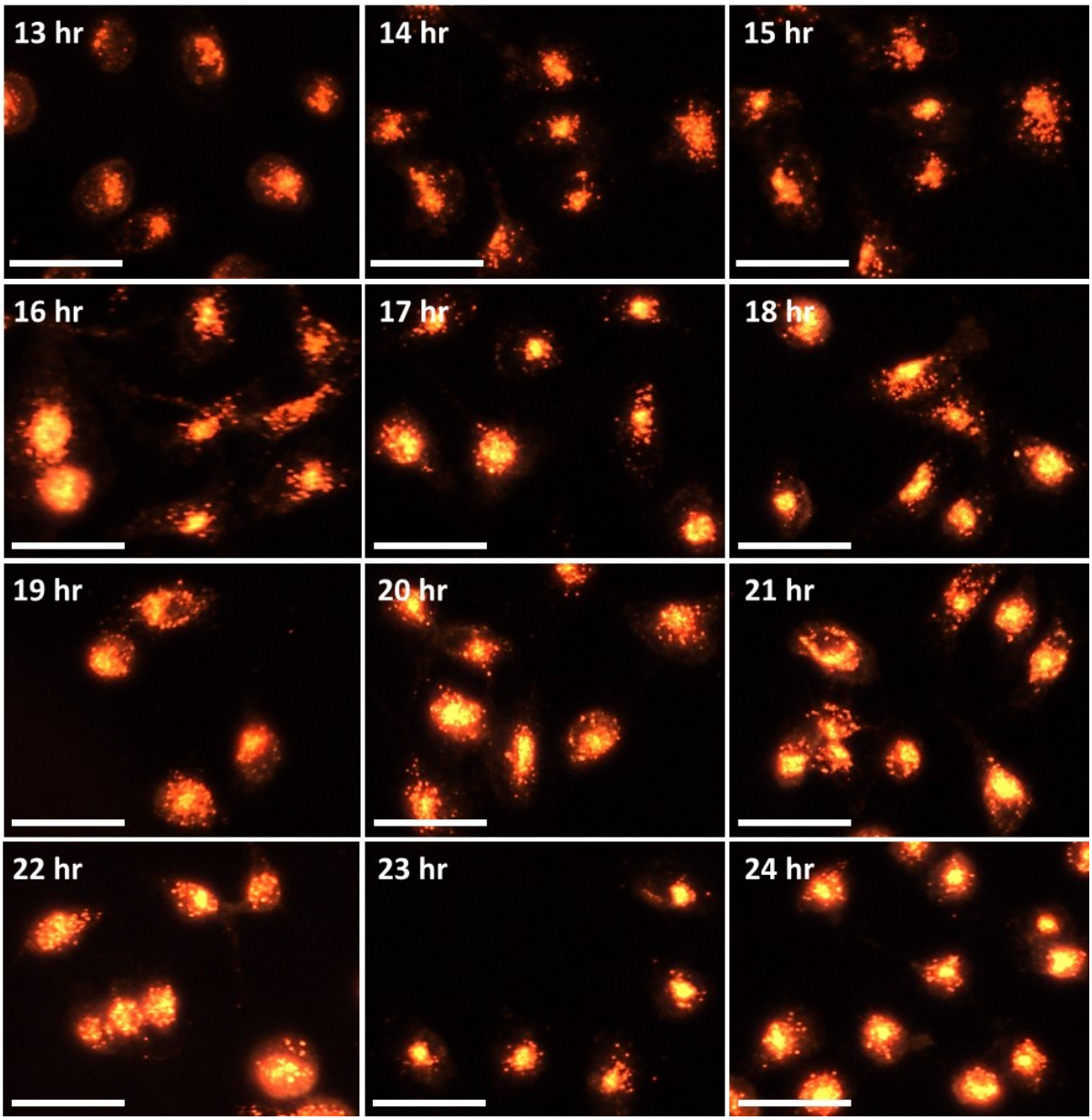

Figure S4. Dark field images of lysosomal fusion and autophagy phase at 13-24 hr from Fu-AuNPs treatment. The scale bars are 50 μm.

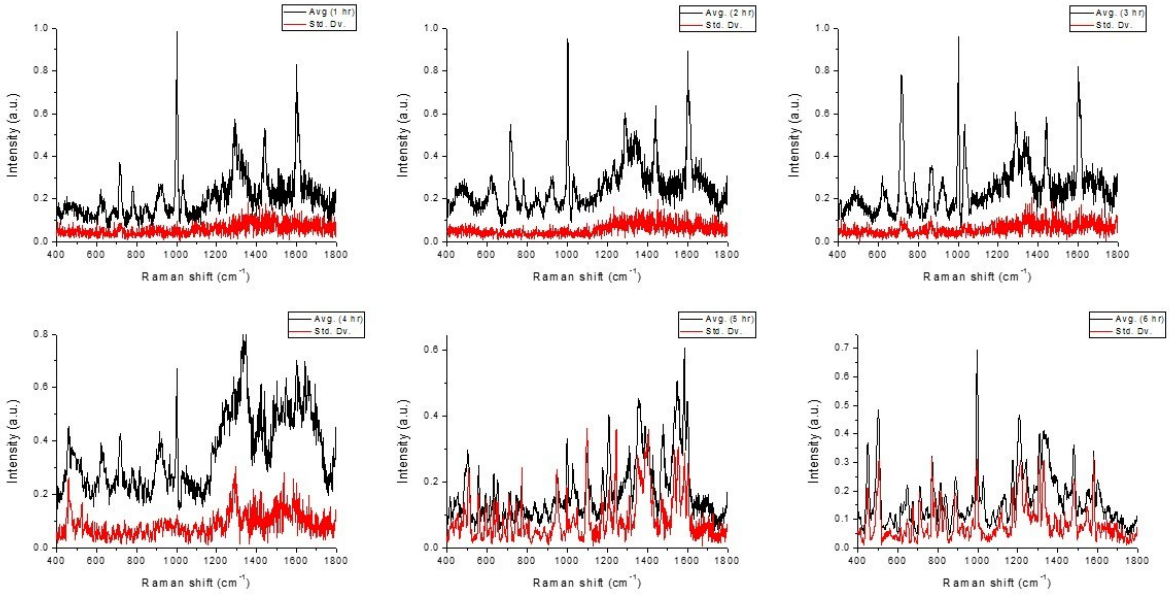

Figure S5. Measured Raman spectra for 1-6 hr from Fu-AuNPs treatment with their standard deviation plotting.

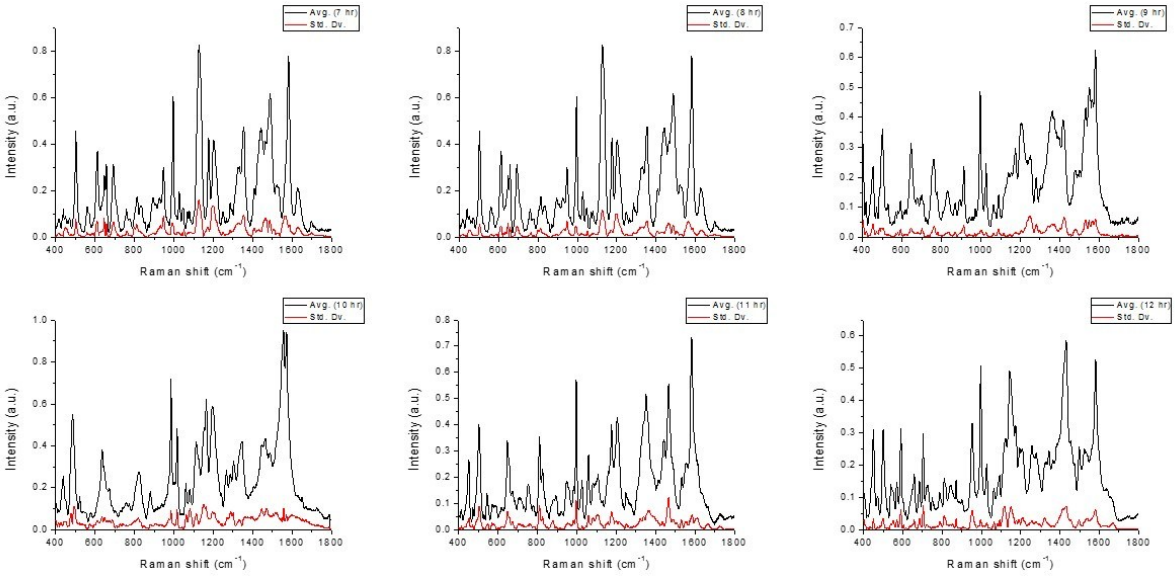

Figure S6. Measured Raman spectra for 7-12 hr from Fu-AuNPs treatmentwith their standard deviation plotting.

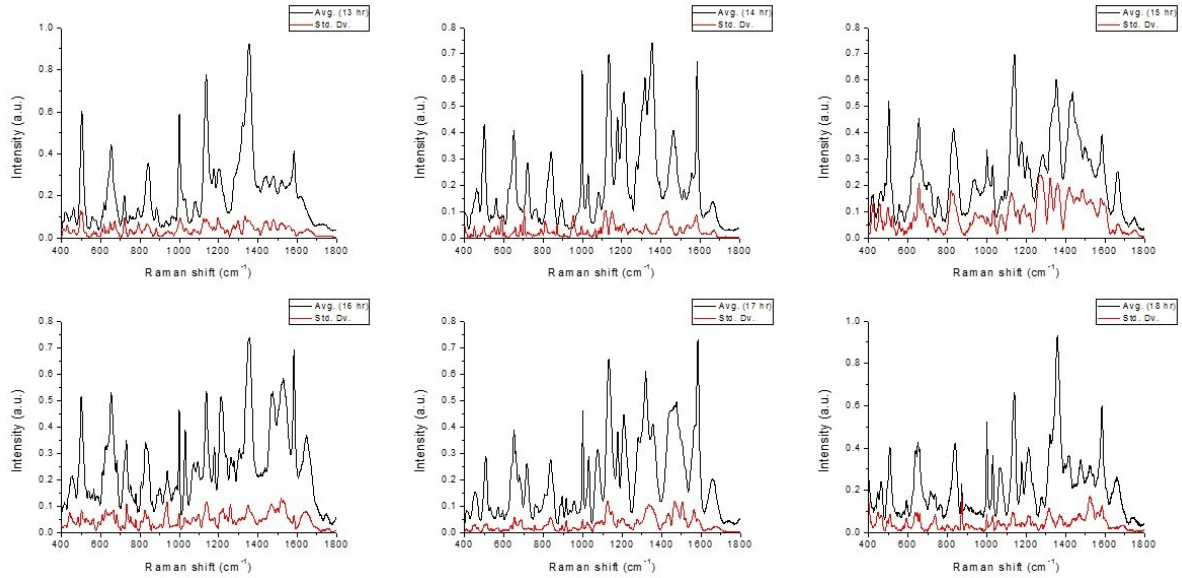

Figure S7. Measured Raman spectra for 13-18 hr from Fu-AuNPs treatmentwith their standard deviation plotting.

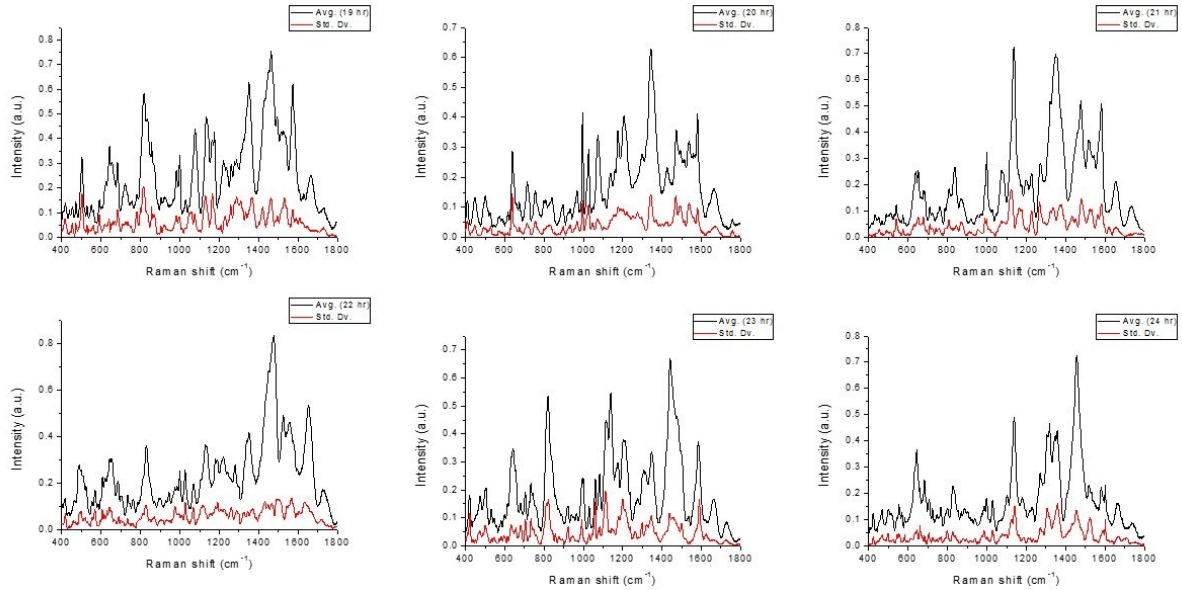

Figure S8. Measured Raman spectra for 19-24 hr from Fu-AuNPs treatment with their standard deviation plotting.

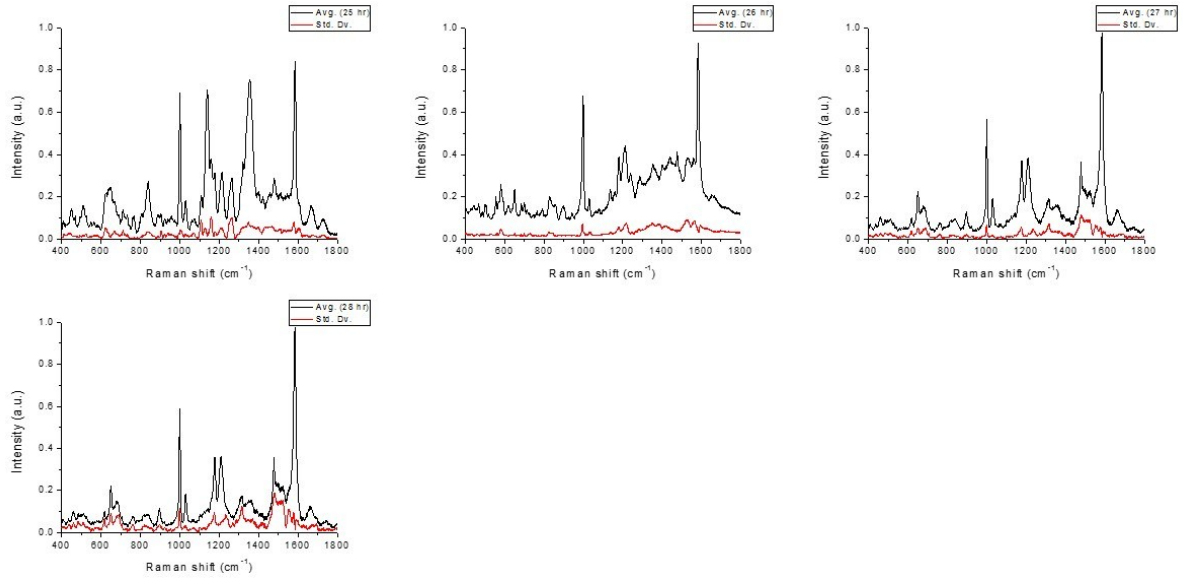

Figure S9. Measured Raman spectra for 25-28 hr from Fu-AuNPs treatment with their standard deviation plotting.