Electronic Supplementary Material (ESI) for Nanoscale.

Supplementary Information

Smart Surface Enhanced Raman Scattering Traceable Drug Delivery System

Lei Liu [a], *Yonghong Tang* [b], *Sheng Dai* *[a], *Freddy Kleitz* [c], *and Shi-Zhang Qiao* *[a]

[a] School of Chemical Engineering, The University of Adelaide, Adelaide, SA 5005, Australia.

[b] Centre for Nano Scale Science and Technology, School of Computer Science, Engineering, and Mathematics, Flinders University, Adelaide, SA 5042, Australia.

[c] Department of Chemistry and Centre de Recherche sur les Matériaux Avancés (CERMA), Université Laval, Quebec City, QC G1V 0A6, Canada.

* Address for correspondence: s.qiao@adelaide.edu.au; s.dai@adelaide.edu.au

Table S1. DLS data for the different products obtained from the synthesis procedure.

Sample Name	Zeta Potential (mV)	Hydrodynamic Size (nm)
Au NPs	-30.1	12
SNs-NH_2	+18.4	91
Au-SNs-NH_2	+9	103
SNs-Au(-COOH)	-24.6	115
SNs-Au(-NHNH-Boc)	+2.3	174
SNs-Au(-$NHNH_2$)	+15.4	167

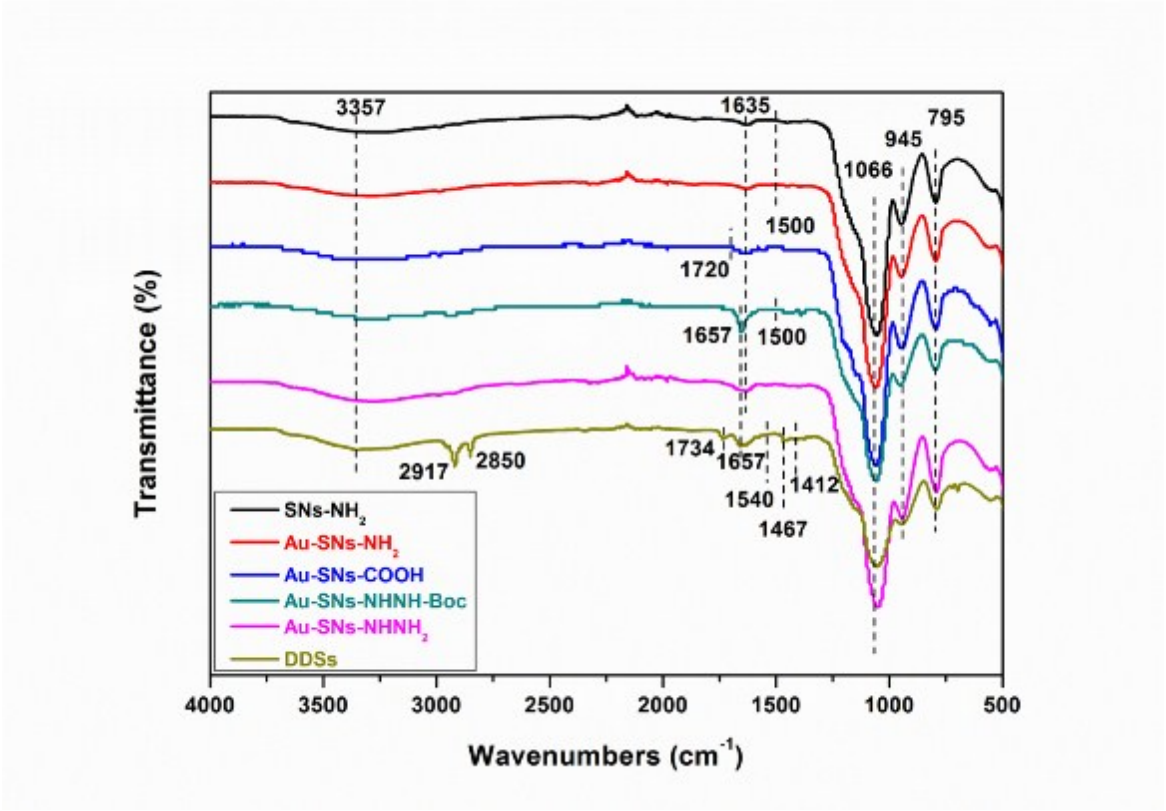

Fig. S1. FTIR spectra of the different products from the synthesis procedure.

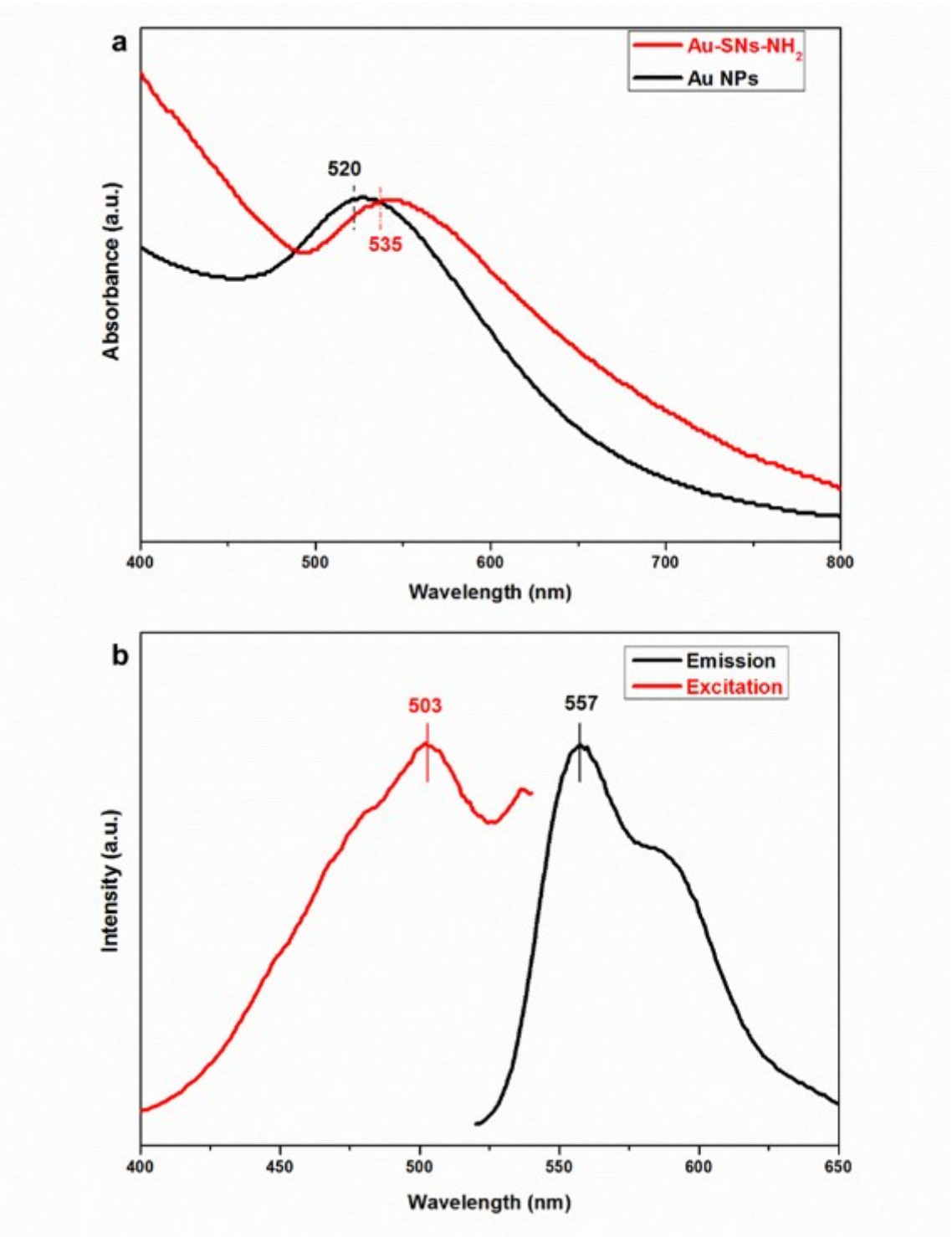

Fig. S2. a) SPR of Au NPs and Au-SNs-NH_2, b) DDS fluorescence spectra.

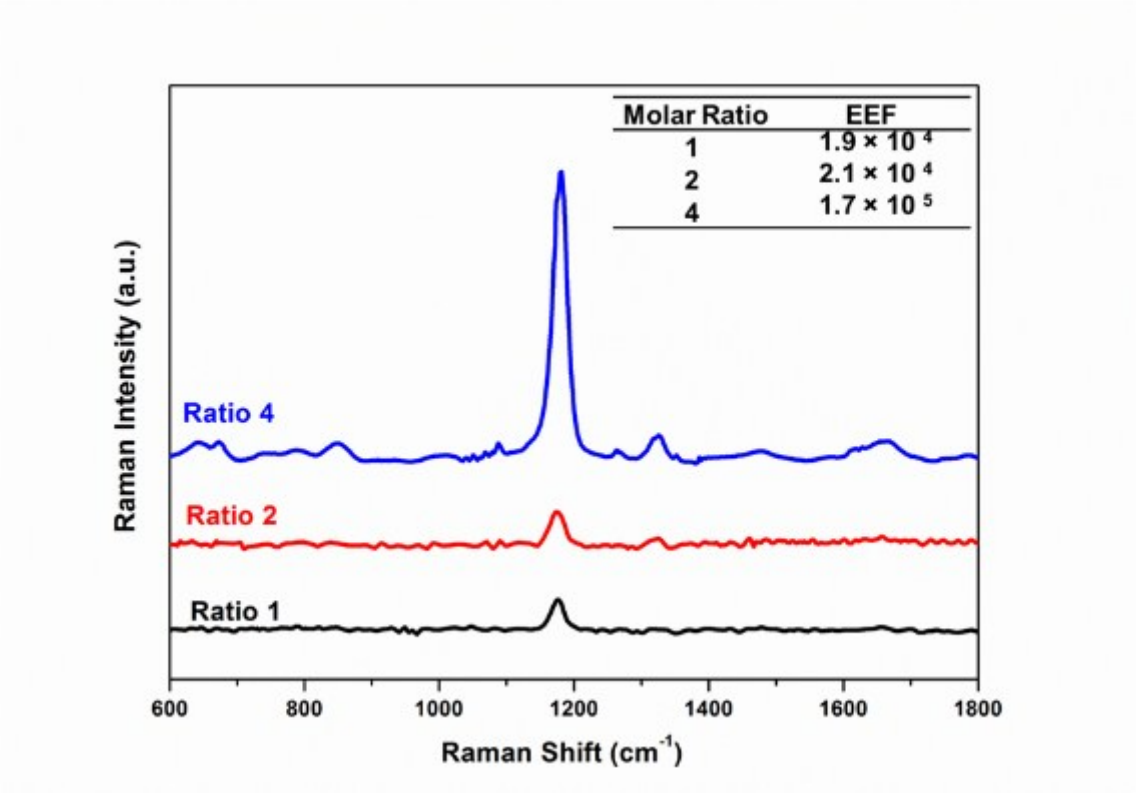

Fig. S3. EEF results of nanocarriers with different gold to silica molar ratios.

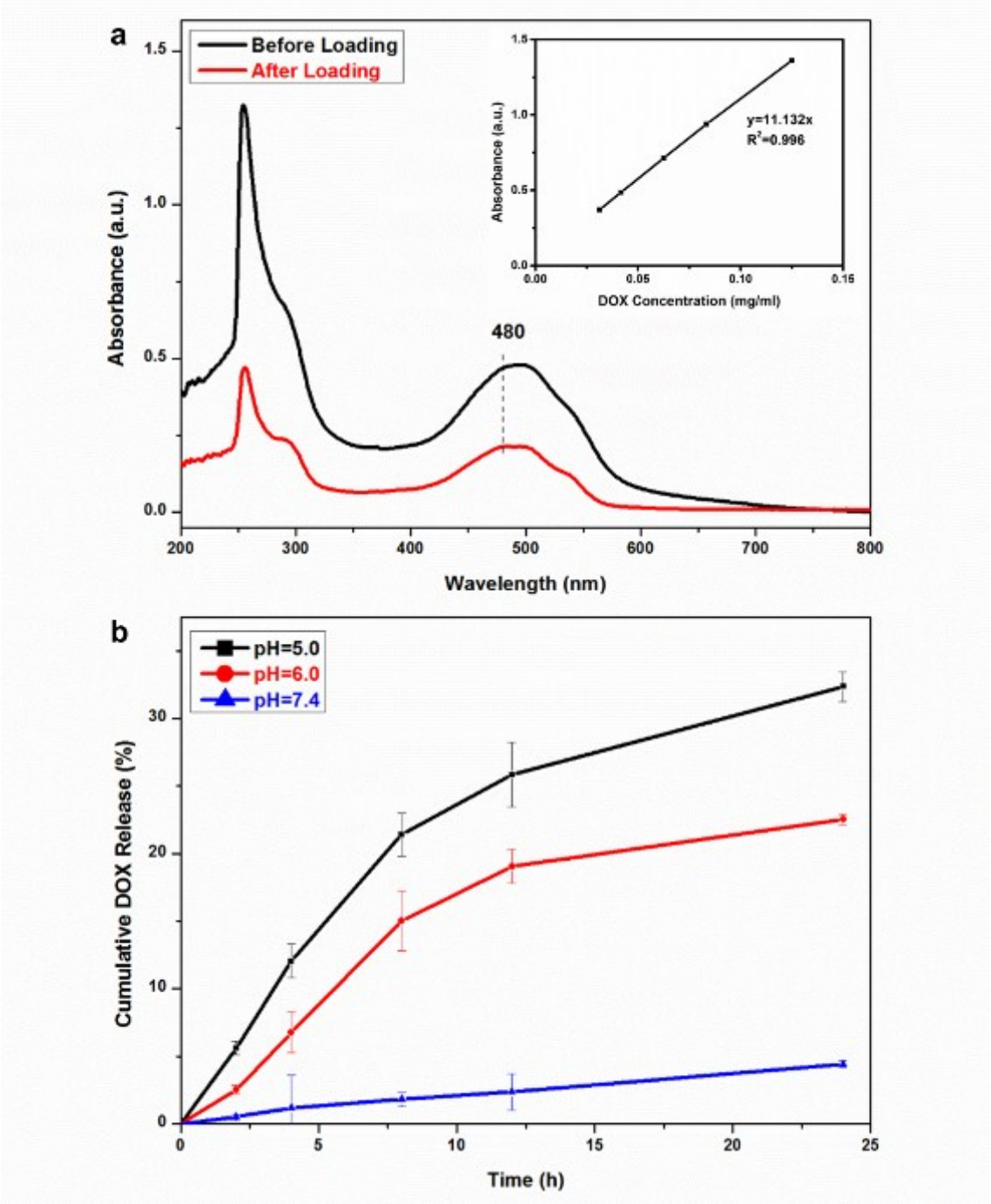

Fig. S4. a) UV-Vis absorbance data of the supernatants collected before and after DOX conjugation with inset DOX standard calibration curve, and b) DOX cumulative release profiles at different pH conditions.

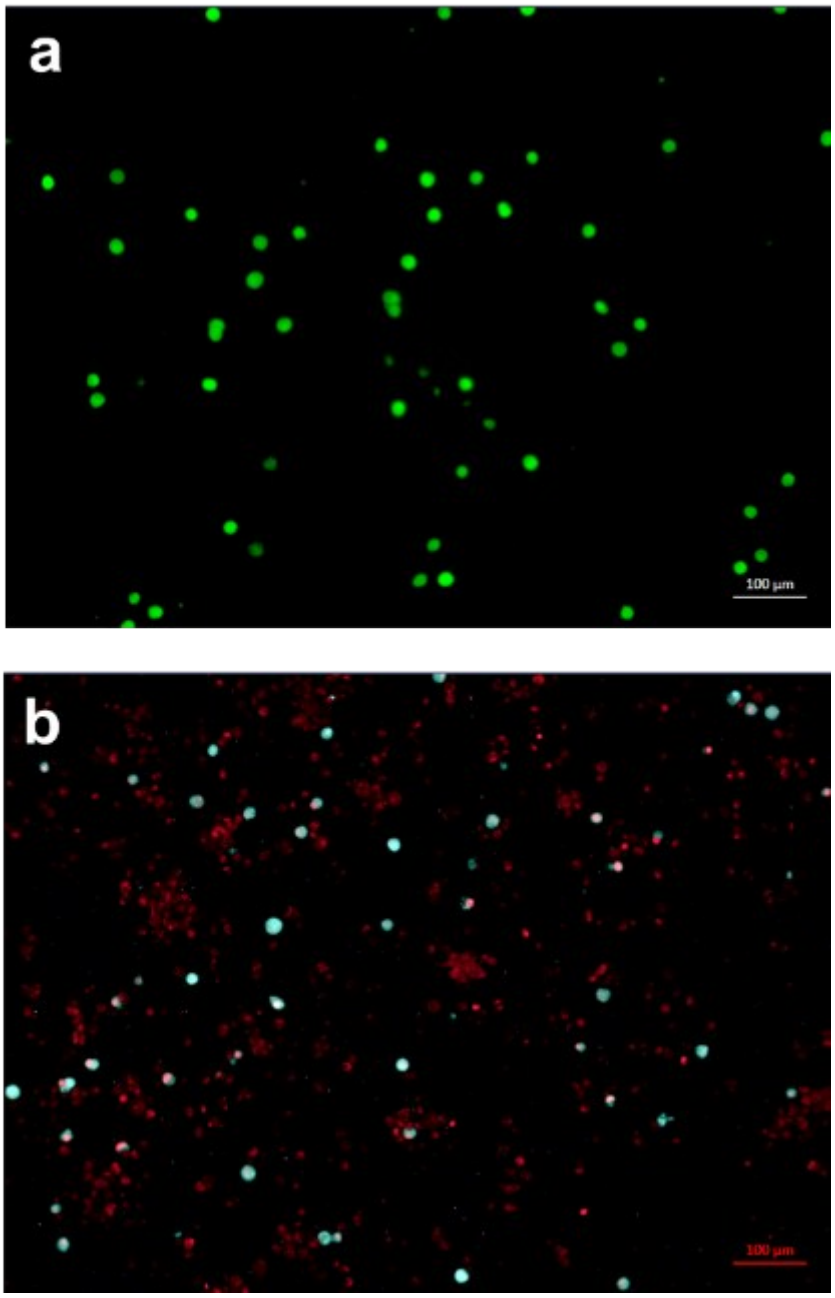

Fig. S5 The fluorescence images of LIVE/DEAD® Analysis of a) nanocarriers and b) DDSs incubated in HeLa cells for 24 h.