SUPPORTING INFROMATION

Hybridized Doxorubicin-Au Nanospheres Exhibit Enhanced Near-infrared Surface Plasmon Absorption for Photothermal Therapy Applications

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Table of Contents

Table S1. Comparison of HAuNS and DAuNS

Materials	Size (nm)	polydispersity index	Thickness of Au shell (nm)	Zeta potential (mV)
HAuNS	57.9±1.3	0.0301	9.1±0.4	-23.5±0.2
DAuNS	58.6±1.6	0.0412	9.3±0.3	14.6±0.5

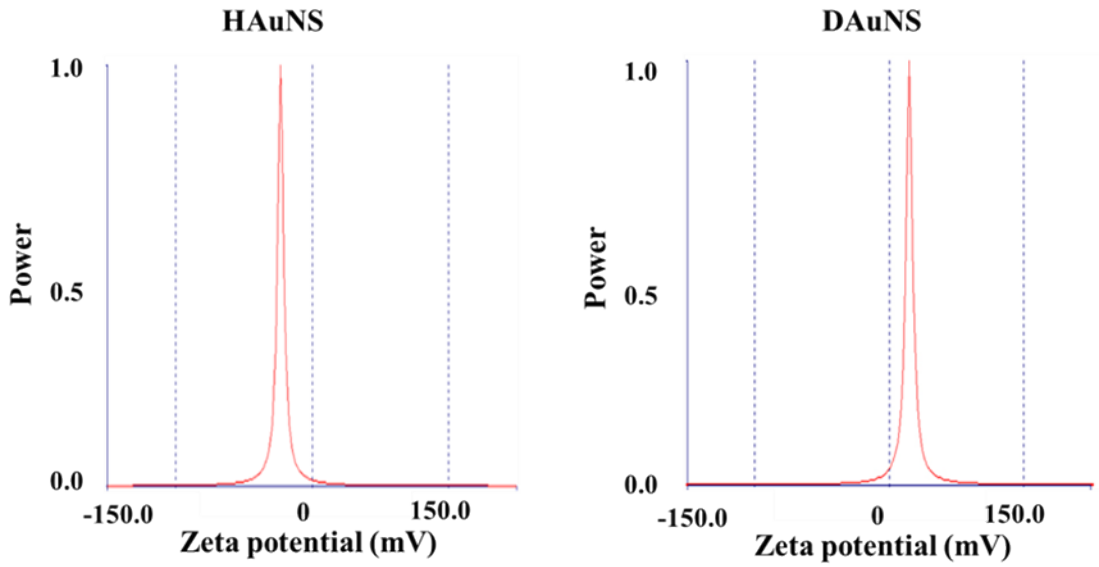


Figure S1. Zeta potential of HAuNS and DAuNS.

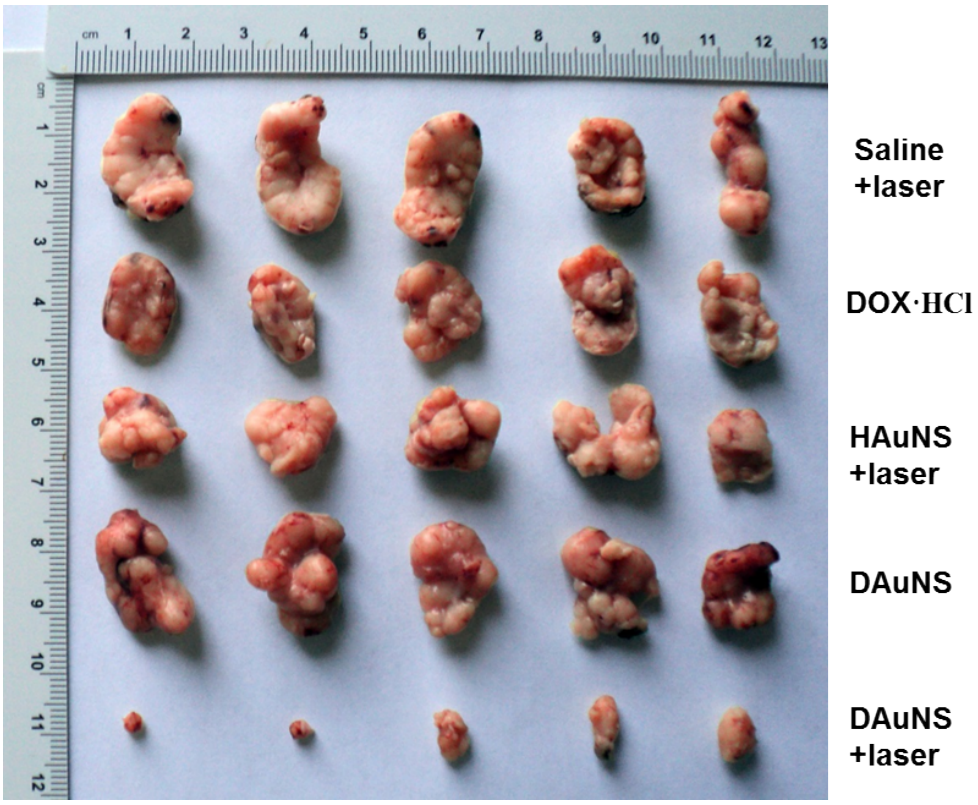


Figure S2. Photographs of excised tumors after different treatments. Tumors were removed on day 22 for all groups except for the saline plus laser group, in which tumors were removed on day 14.

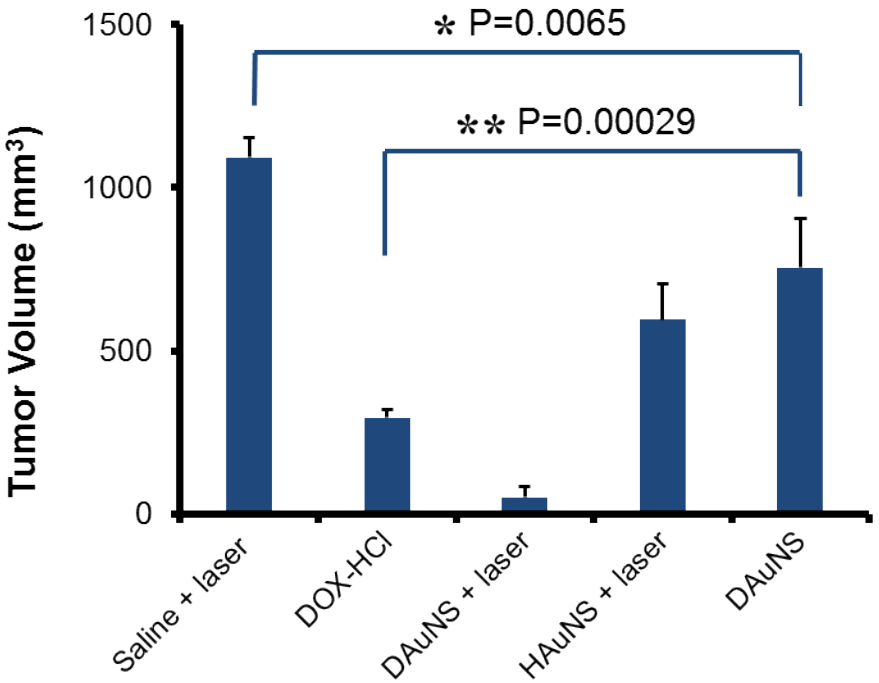


Figure S3. Average volume of tumors on day 14 after different treatments. The mean tumor volume in DAuNS alone group on day 14 after treatment was 754.6±150.4 mm^3 (n=6), which was significantly smaller than that of the saline plus laser (1092.0±61.2 mm^3 on day 14, n=6; P=0.0065), but bigger than that of the DOX•HCl alone (295.6±25.5 mm^3 on day 14, n=6; P=0.00029). The results above can be explained as below: the released DOX from DAuNS exerts a chemical effect to kill some tumor cells compared to Saline plus laser; but the releasing process is slow and incomplete without the mediation of laser, so the cell killing efficacy is weak than DOX·HCl.

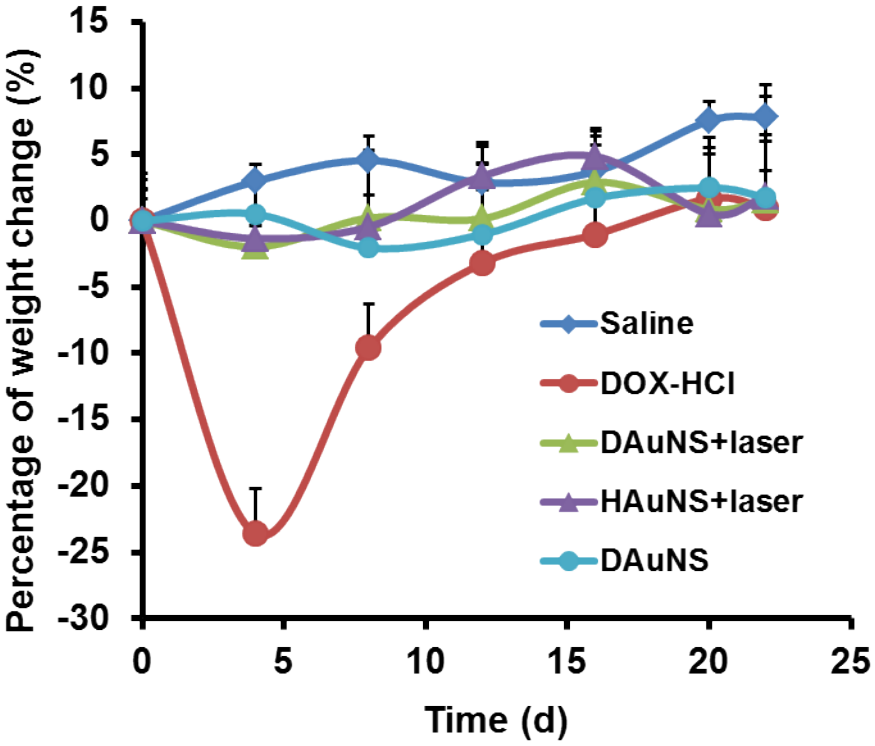


Figure S4. Percentage of weigh change in mean body weight.

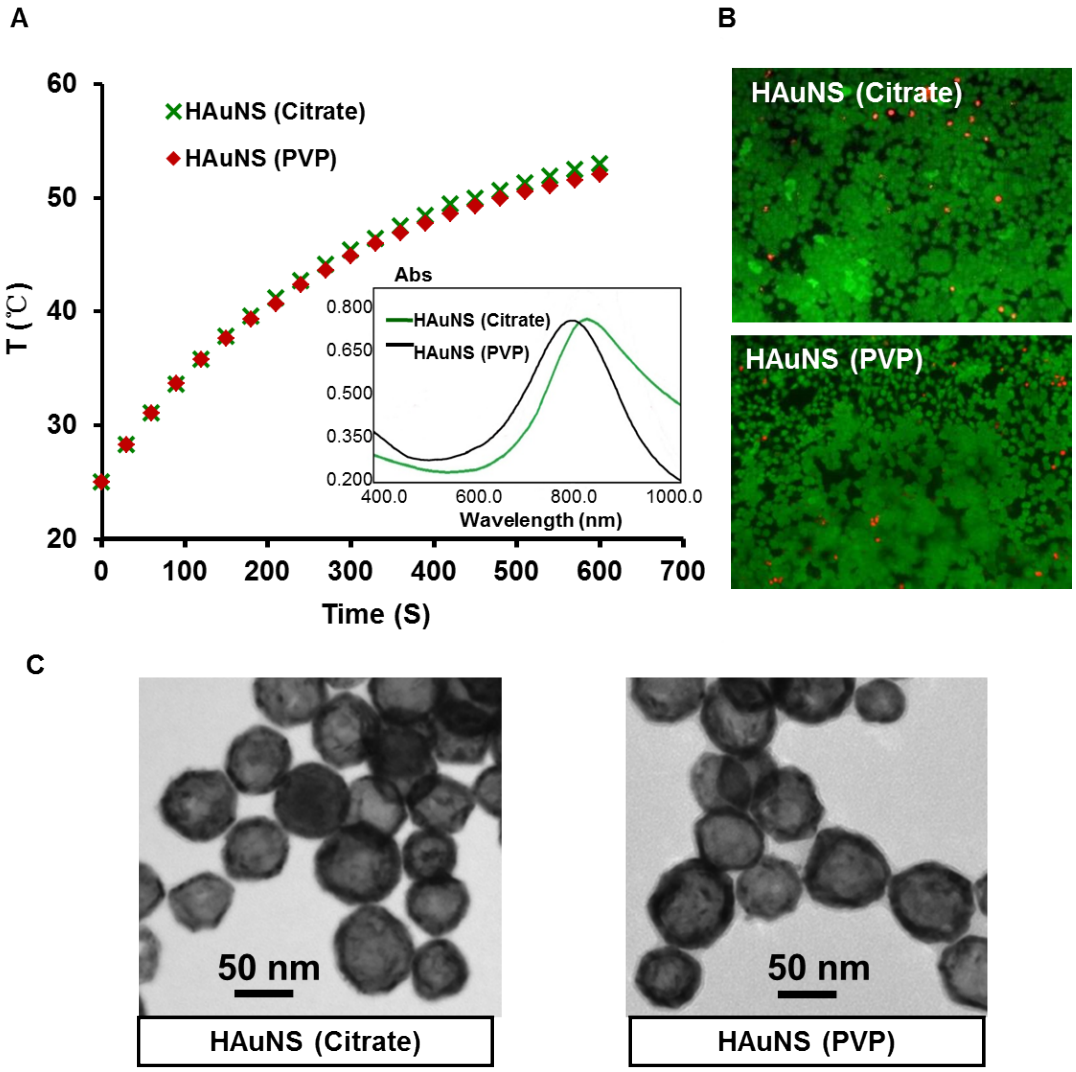
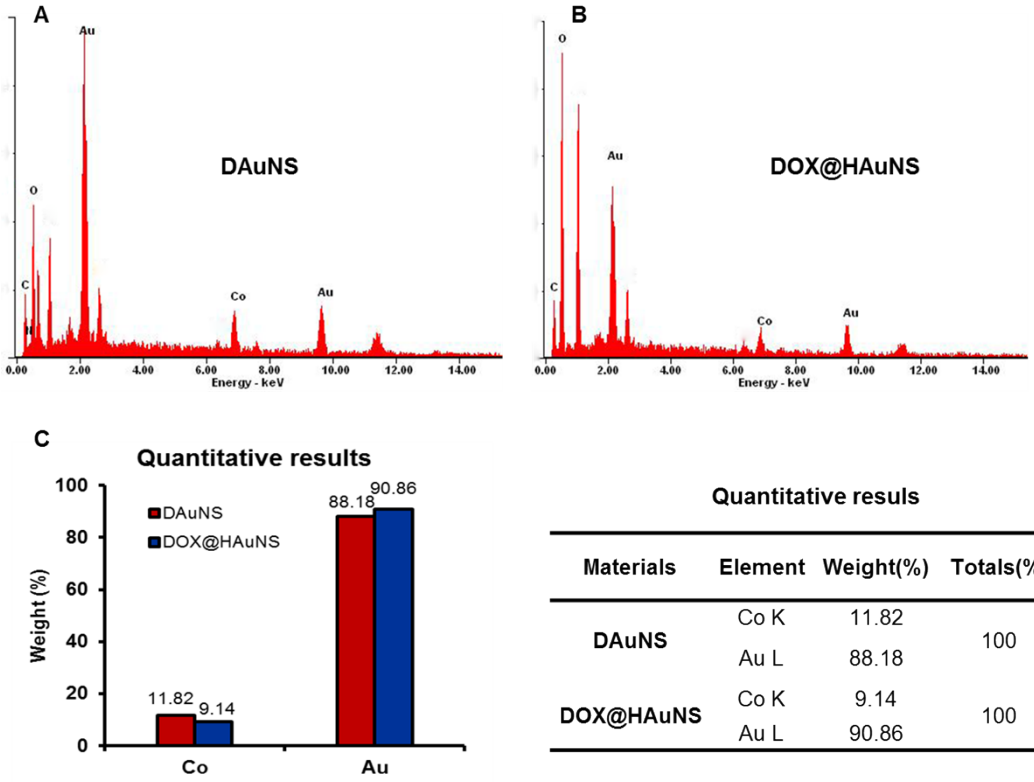


Figure S5. Comparison of HAuNS stabilized with citrate and PVP. **(A)** The temperature versus time plots recorded for 2 mL aqueous dispersions of HAuNS (Citrate) and HAuNS (PVP) under the same Au concentration on irradiation by a 3.0 W/cm^2 laser, the inset is absorption spectra of HAuNS (Citrate) and HAuNS (PVP). **(B)** PTT efficacy of HAuNS (Citrate) and HAuNS (PVP) with a NIR laser irradiation (1.5 W/cm^2, 3 min). The results were presented as the overlap of the images stained by calcein AM and EthD-1. **(C)** TEM images of HAuNS stabilized with citrate and PVP.



Quantitative resuls

Materials	Element	Weight(%)	Totals(%)
DAuNS	Co K	11.82	100
	Au L	88.18	
DOX@HAuNS	Co K	9.14	100
	Au L	90.86	

Figure S6. Analysis of metal contents by Energy dispersive X-ray (EDX). **(A)** EDX spectrum of DAuNS. **(B)** EDX spectrum of DOX@HAuNS. **(C)** Quantitatve results of DAuNS and DOX@HAuNS from A and B.

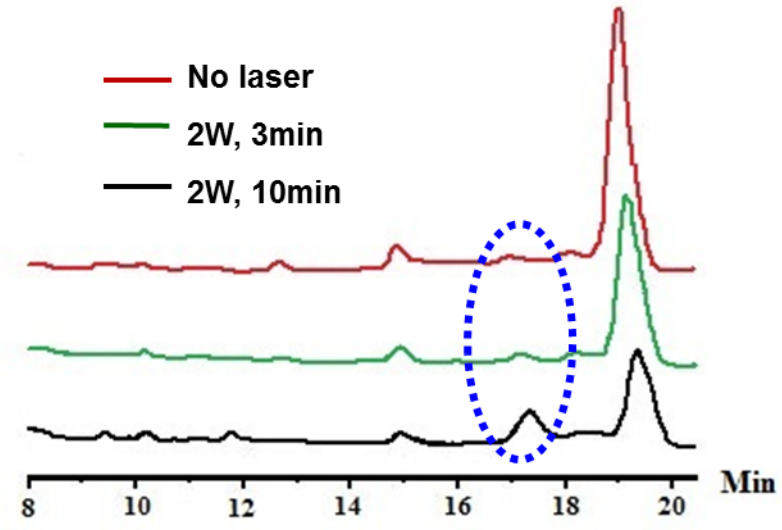


Figure S7. The stability of DOX under laser irradiation. After different time of laser irradiation, solution was detected with HPLC. Blue broken line circle indicates the increase of the peak height after the laser of 10 min (2.0 W/cm^2).

Chromatographic conditions: A Hypersil BDS C_{18} column (250 mm × 4.6 mm, 5 μm, Thermo Fisher Scientific, USA) was used for the chromatographic separation. The mobile phase was composed of H_2O and acetonitrile in the ratio of 68:32 (v/v) and adjusted pH at 2.5 by phosphoric acid, at a flow rate of 1 mL/min. The wavelength of the UV detector was set at 233 nm. The mobile phase was degassed by filtration through a 0.45 μm filter and sonication for 30 min.