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NIR-responsive sandwich drug loading system for tumor targeting and multiple combined treatment

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Supporting Information Text

Characterization

The absorption spectra of nanocarriers were performed on a Varian Cary 100 UV-Visible spectrophotometer (Agilent Technologies, USA). Transmission electron microscopy (TEM) images, EDS spectra and element mapping were obtained by using a Tecnai G2 F30 S-TWIN microscope (FEI, USA) operated at 200 kV. X-ray photoelectron spectroscopy (XPS) was performed by using an ESCALAB 250Xi spectrometer (Thermo Fisher Scientific, USA). The irradiation light source with adjustable power density were recorded on near infrared ray (NIR) laser of 808 nm (Changchun New Industries Optoelectronics Technology Ltd, China). Fluorescent microscopic images were taken on OLYMPUS TH4-200 fluorescent microscope (OLYMPUS, Japan). CCK-8 assay was measured using a Tecan infinite 200 PRO multimode Plate readers at 450 nm (Tecan, Austria).

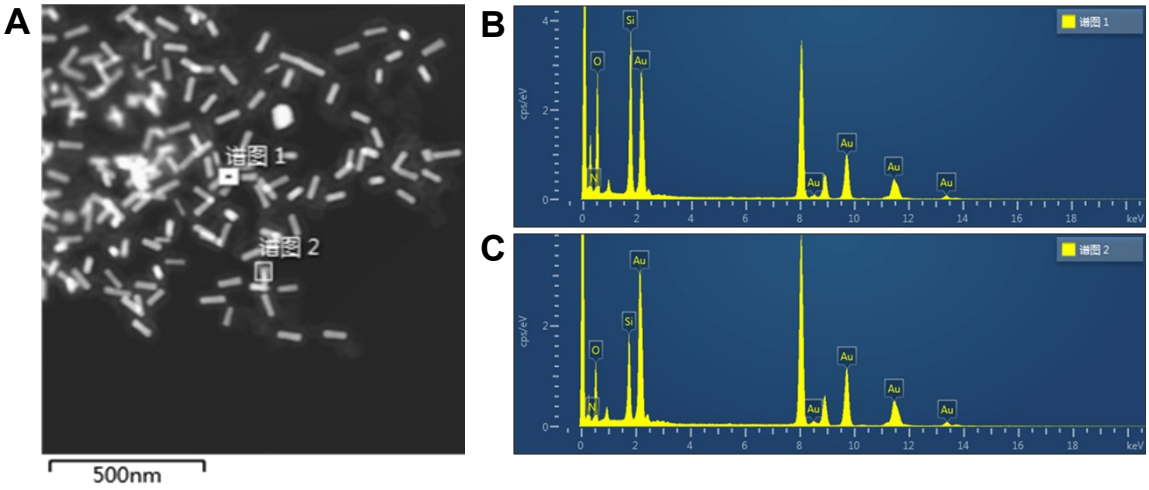

Fig. S1. TEM images (A) and EDS spectra (B and C) of Au@Si-N=N-Si@SiO_2.

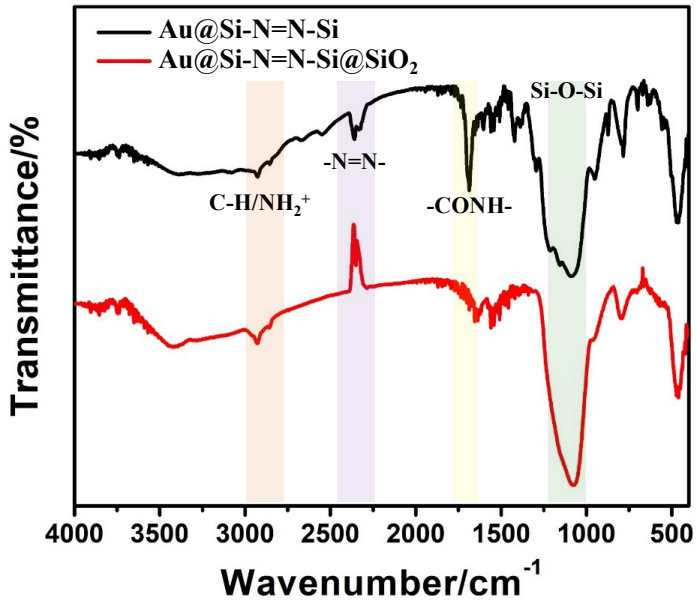

Fig. S2. FT-IR spectra of the Au@Si-N=N-Si@SiO_2 and Au@Si-N=N-Si.

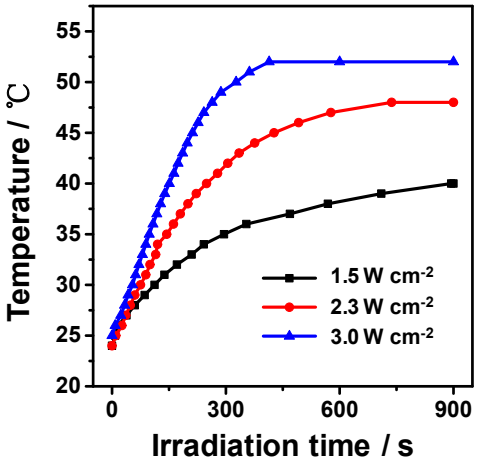

Fig. S3. The temperature of Au@Si-N=N-Si@SiO_2 (170 μg mL^{-1}) solution under NIR irradiation for 15 min with various 808 nm laser power.

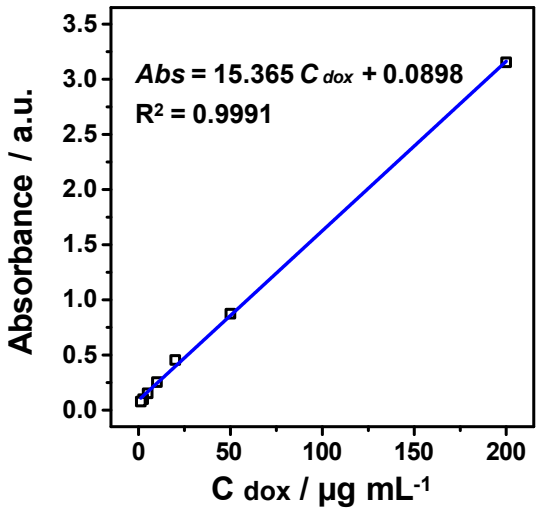

Fig. S4. A linear relationship by plotting the absorbance of the various concentration of Dox (200 µg mL^{-1}, 50 µg mL^{-1}, 20 µg mL^{-1} 10 µg mL^{-1}, 5 µg mL^{-1}, 2.5 µg mL^{-1}, 1.25 µg mL^{-1}).

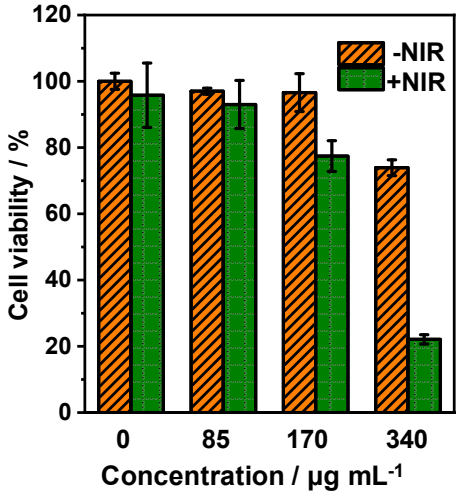

Fig. S5. 293 cells treated with various concentrations of Au@Si-N=N-Si@SiO_2-Dox (0, 85, 170 and 340 μg mL^{-1}) with or without 808nm NIR irradiation (2.3 W cm^{-2}, 10 min).

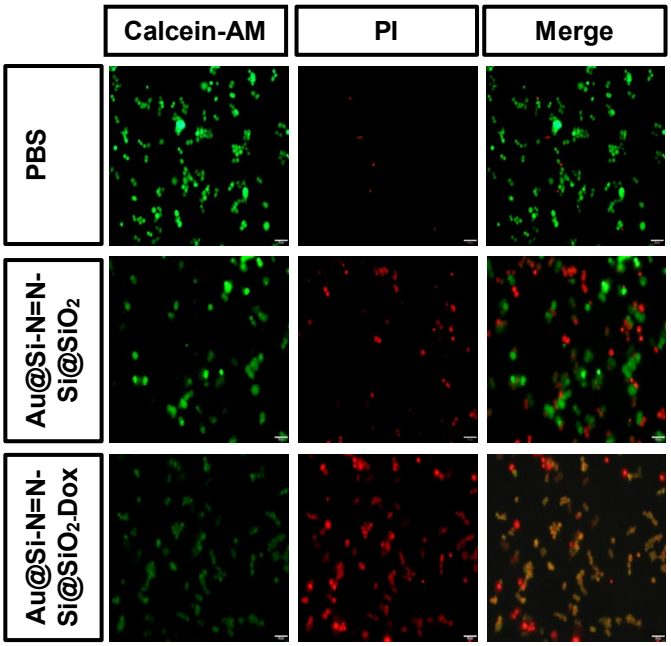

Fig. S6. Fluorescence images of live/dead HCT116 cells after incubation with PBS, Au@Si-N=N-Si@SiO_2 and Au@Si-N=N-Si@SiO_2-Dox (170 μg mL^{-1}). Scale bar = 50 μm.

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