Electronic Supplementary Material (ESI) for Nanoscale.

Supporting Information

SUPPLEMENTARY FIGURES

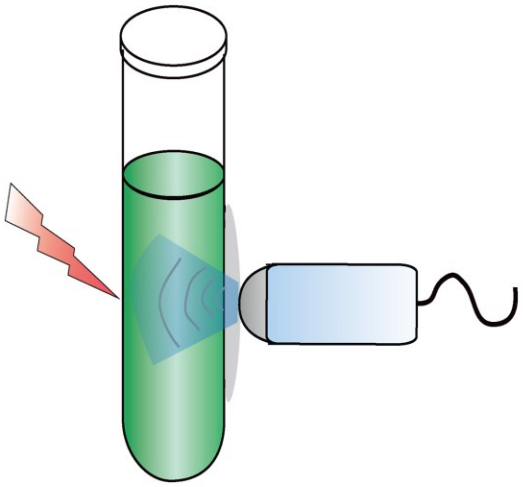

Figure S1. Schematic of in vitro ultrasound imaging experiment.

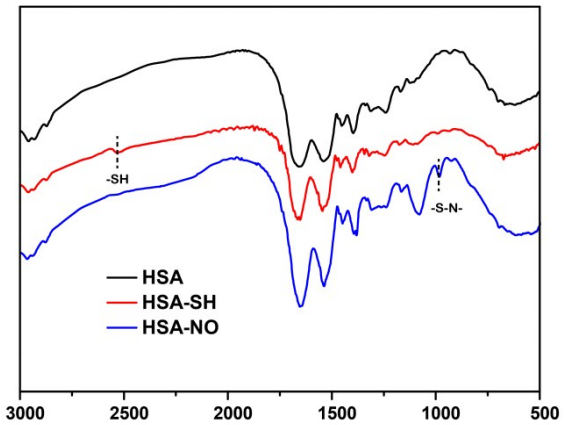

Figure S2. FT-IR spectra of HSA, HSA-SH and HSA-NO (-SH: 2550 cm-1, -S-N-: 955 cm-1).

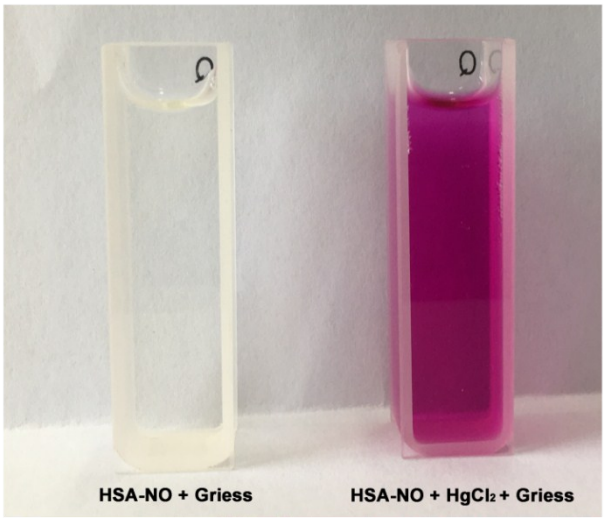

Figure S3. The change from faint yellow liquid to pink liquid in the reaction process as Griess assay quickly became pink once the SNO was reduced to NO_2^- by $HgCl_2$.

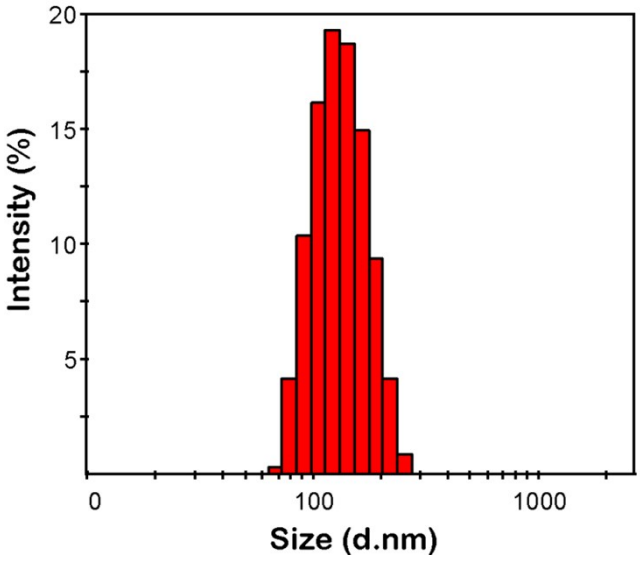

Figure S4. Size distribution of IPH.

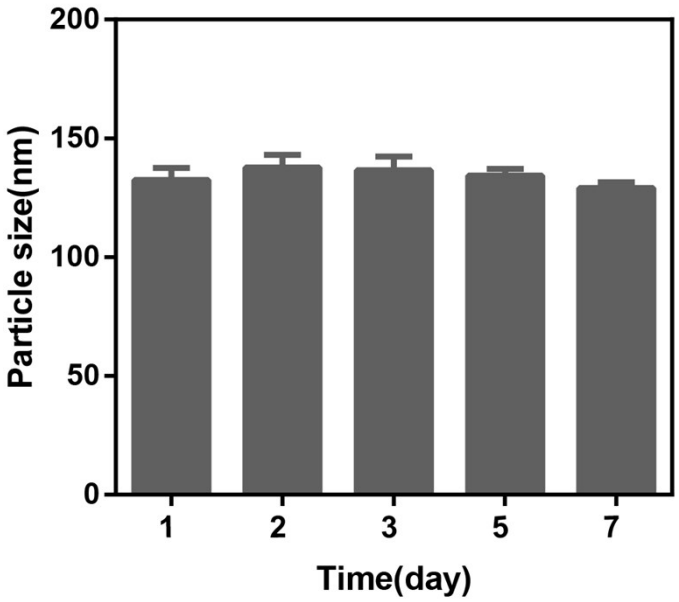

Figure S5. The storage stability of IPH-NO in PBS at −4 °C.

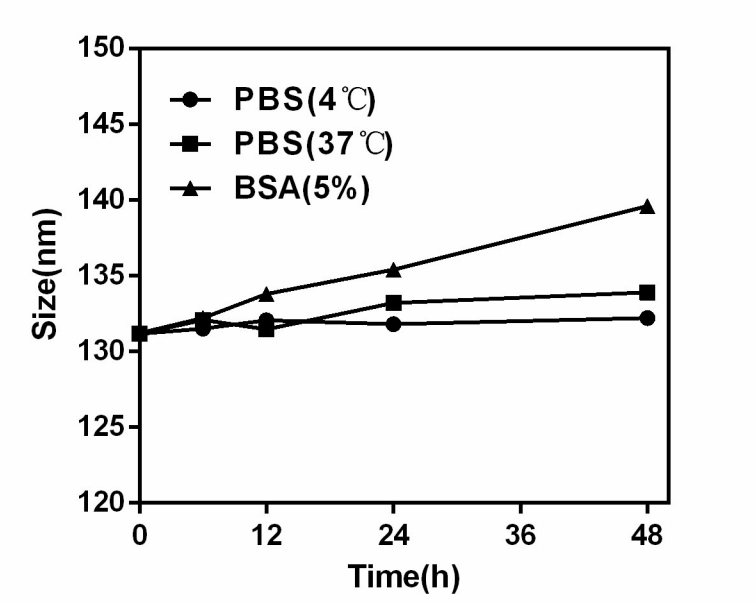

Figure S6. The stability of IPH-NO in PBS at −4 °C or 37°C or in 5%.FBS.

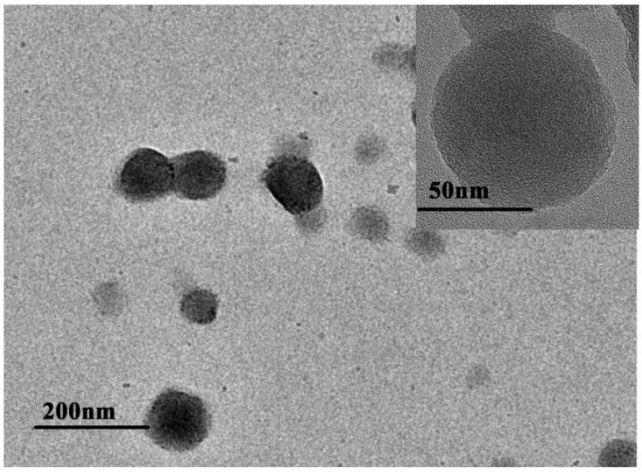

Figure S7. TME images of IPH-NO. The scale bar is 200 nm. Inset: TEM images of a single NP, the scale bar is 50 nm.

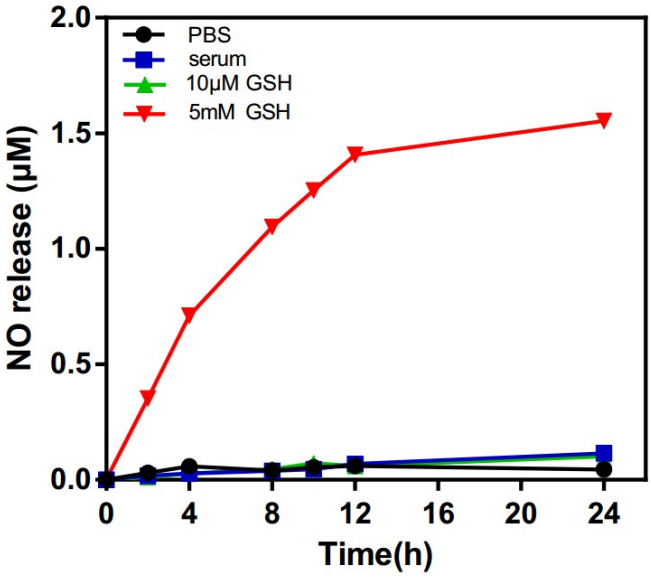

Figure S8. In vitro NO release of IPH-NO NPs in serum and GSH (0, 10μM, 5 mM) in PBS at 37℃.

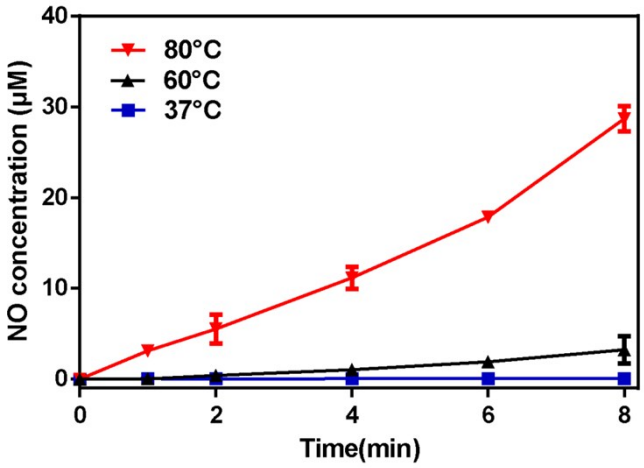

Figure S9. The influence of direct heating on NO release from IPH-NO.

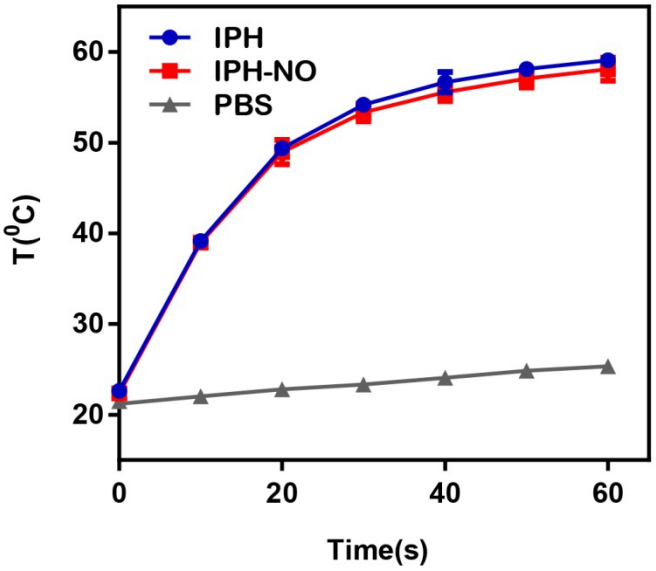

Figure S10. The temperature elevation curve of PBS, IPH-NO and IPH after continuous time with NIR irradiation.

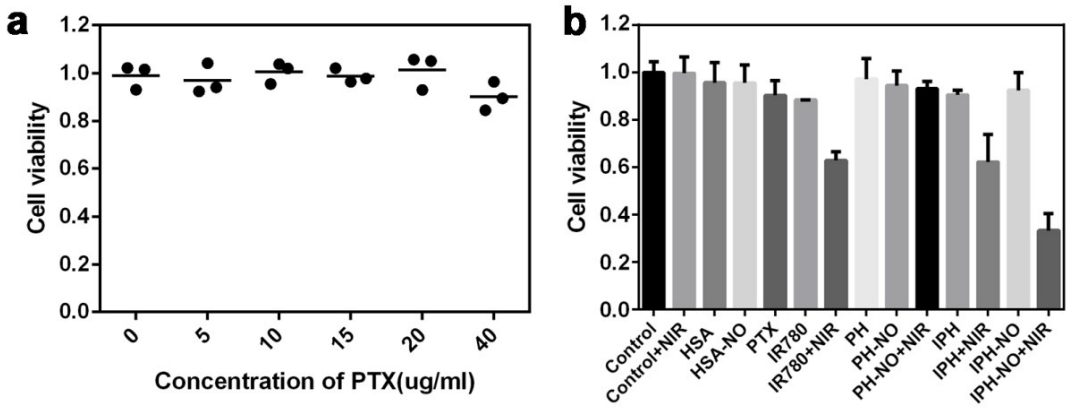

Figure S11. Cell cytotoxicity. (a) The cell viability of PTX at different concentrations. 1 mg of PTX was dissolved in 1 ml of DMSO as a stock solution. The stock solution was diluted to different concentrations with medium. PTX-free DMSO medium dilutions were used as a control. **(b)** The cell viability of all samples (NO 4 μM, IR780 2 μg/ml, and PTX 20 μg/ml).

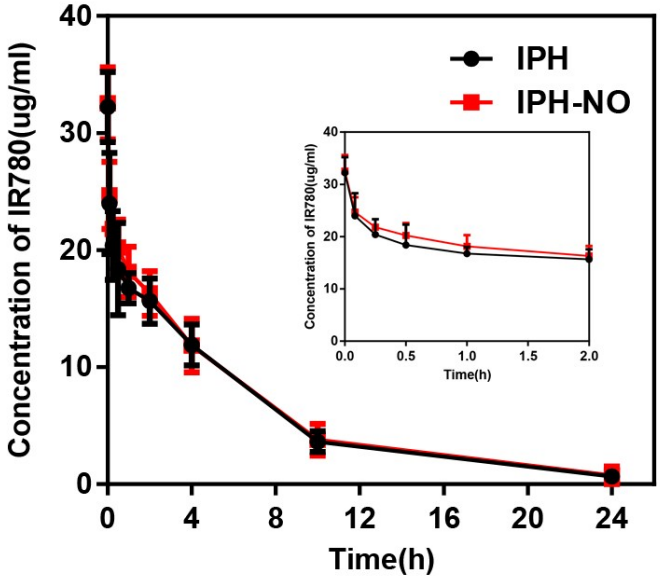

Figure S12. Blood retentions of IPH-NO and IPH over a span of 24 h.

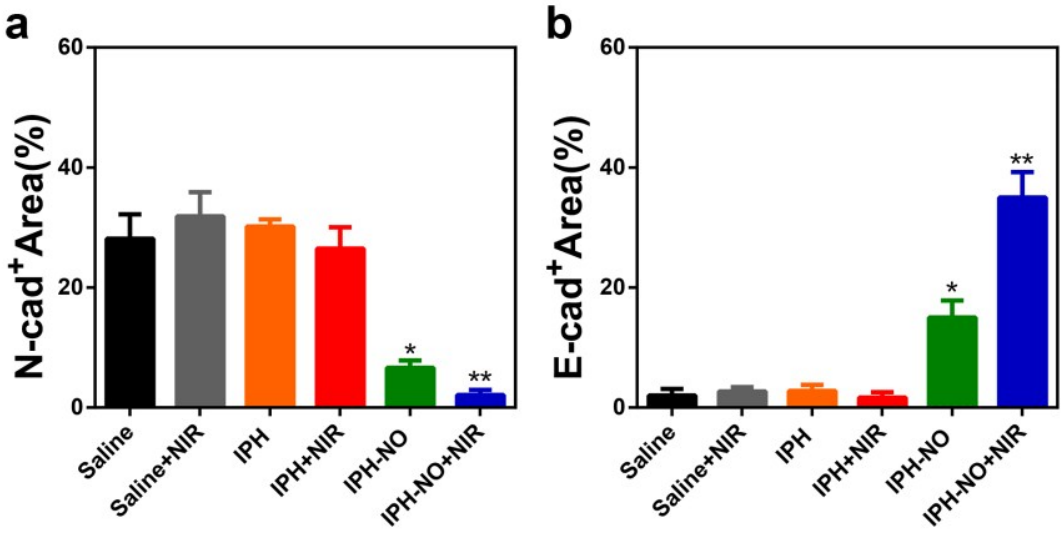

Figure S13. Quantification of relative N-cadherin (a) and E-cadherin (b) fluorescence intensity. Data are demonstrated as mean ± SD. Significant differences were analyzed by compared with the saline group (*$p < 0.05$, **p < 0.01).

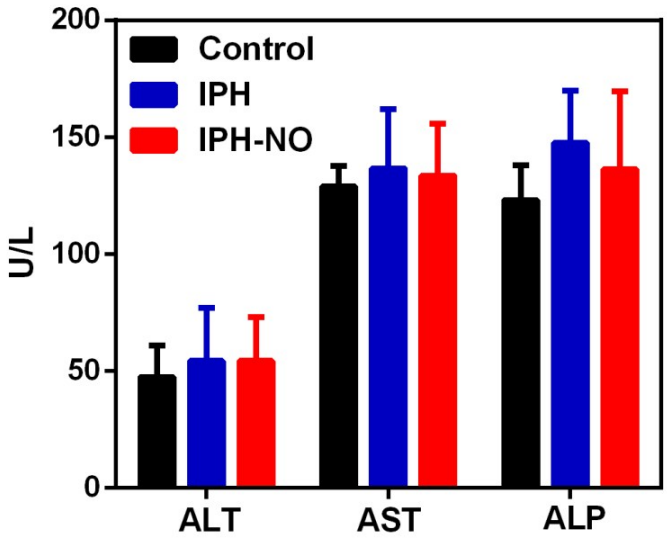

Figure S14. Liver toxicity assessments. Seven days after the injection of the nanoparticles, ALT, AST and ALP activities in the serum of the mice were measured.

Table S1

CBCs of the mice treated with saline, IPH and IPH-NO. Healthy ICR mice were randomly divided into 3 groups (n = 3). Saline, IPH and IPH-NO were administered via the tail vein at the dose of 20 mg PTX/kg, 2mg/kg IR780 and 4mmol/kg NO respectively. Blood samples were collected and analyzed seven days after injection.

	Saline	IPH	IPH-NO	Reference range
WBC (10^9/L)	**3.97±1**	**4.6±2.12**	**2.5±0.87**	**0.8-6.8**
Lymph (10^9/L)	**2.23±0.71**	**1.9±1.21**	**0.97±0.25**	**0.7-5.7**
Mon (10^9/L)	**0.27±0.06**	**0.24±0.1**	**0.17±0.12**	**0.0-0.3**
Gran (10^9/L)	**1.47±0.25**	**2.3±1.08**	**1.37±0.57**	**0.1-1.8**
Lymph (%)	**64.43±4.14**	**70.8±10.06**	**70.27±9.68**	**55.8-90.6**
Mon (%)	**5.4±0.78**	**4.43±1.56**	**4.7±1.57**	**1.8-6.0**
Gran (%)	**36.17±3.9**	**29.77±8.93**	**33.03±8.16**	**8.6-38.9**
RBC (10^{12}/L)	**7.22±1.09**	**6.8±1.1**	**7.25±1.14**	**6.36-9.42**
HGB (g/l)	**129.33±16.65**	**117.67±20.5**	**125.33±19.14**	**110-143**
HCT (%)	**37.27±5.96**	**34.5±7.91**	**37.7±6.29**	**34.6-44.6**
MCV (fl)	**51.57±0.51**	**50.47±2.05**	**52±0.56**	**48.2-58.3**
MCH (pg)	**17.9±0.72**	**17.23±0.29**	**17.23±0.25**	**15.8-19**
MCHC (g/l)	**348.33±17.21**	**324±13.39**	**332.33±6.35**	**302-353**
RDW (%)	**12.8±0.35**	**14.77±2.93**	**12.9±0.53**	**13-17**
PLT (10^9/L)	**1499.67±143.09**	**1241.33±226.42**	**1328±144.21**	**450-1590**
MPV (fl)	**5.3±0.2**	**5.8±0.3**	**5.2±0.1**	**3.8-6.0**

SUPPLEMENTARY VIDEOS

Supplementary Video 1. Video of ultrasound imaging for IPH-NO

IPH-NO.avi