



Supporting Information

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A Light-Triggered Mesenchymal Stem Cell Delivery System
for Photoacoustic Imaging and Chemo-Photothermal Therapy
of Triple Negative Breast Cancer

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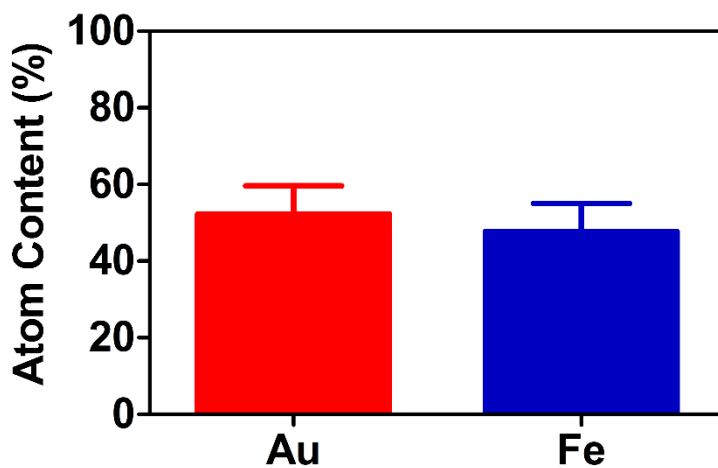


Figure S1. Au and Fe atom contents in LDGI.

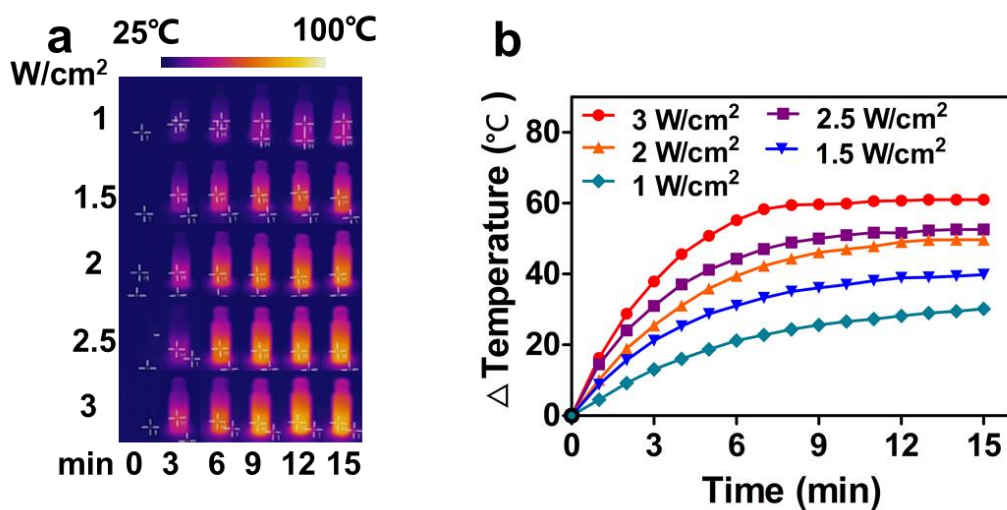


Figure S2. Photothermal analysis with different laser power. (a) Photothermal effect of 120 µg/mL LDGI with different laser irradiation power (1 W/cm², 1.5 W/cm², 2 W/cm², 2.5 W/cm², 3 W/cm²) and corresponding temperature changing curves (b) under 808 nm laser at 3 W/cm² for 15 min.

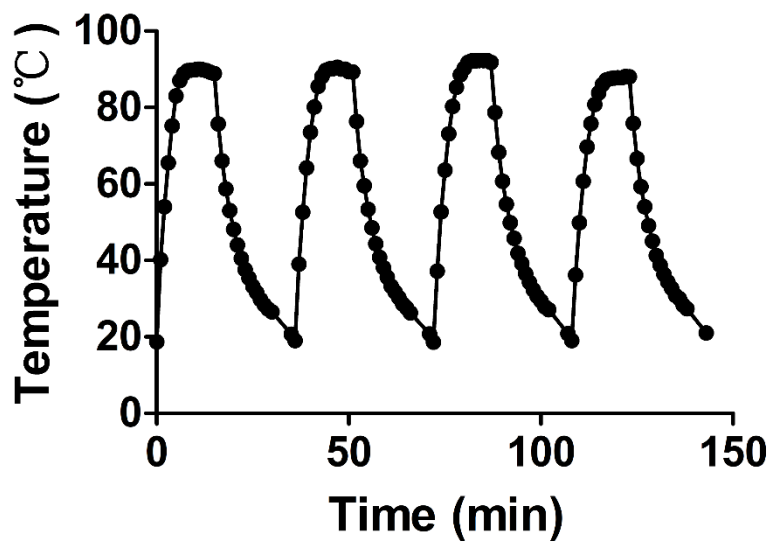


Figure S3. Photothermal ability of LDGI for four circles.

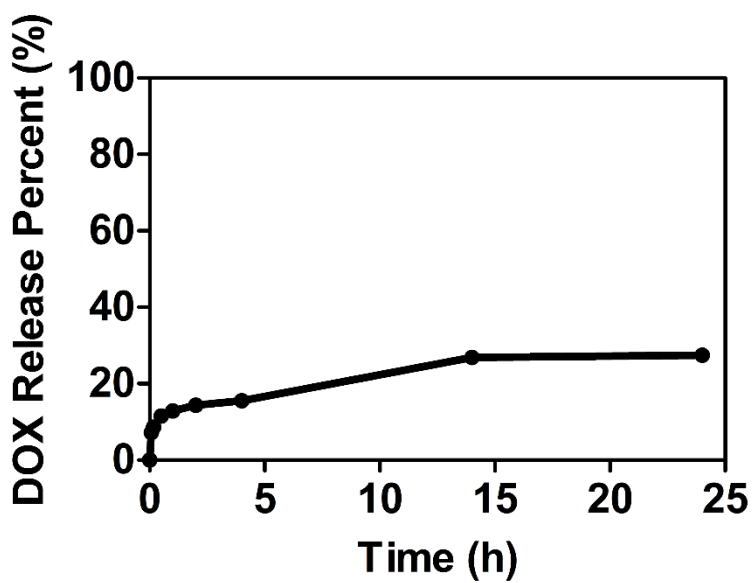


Figure S4. Cumulative DOX release curve within 24 h after synthesis of LDGI.

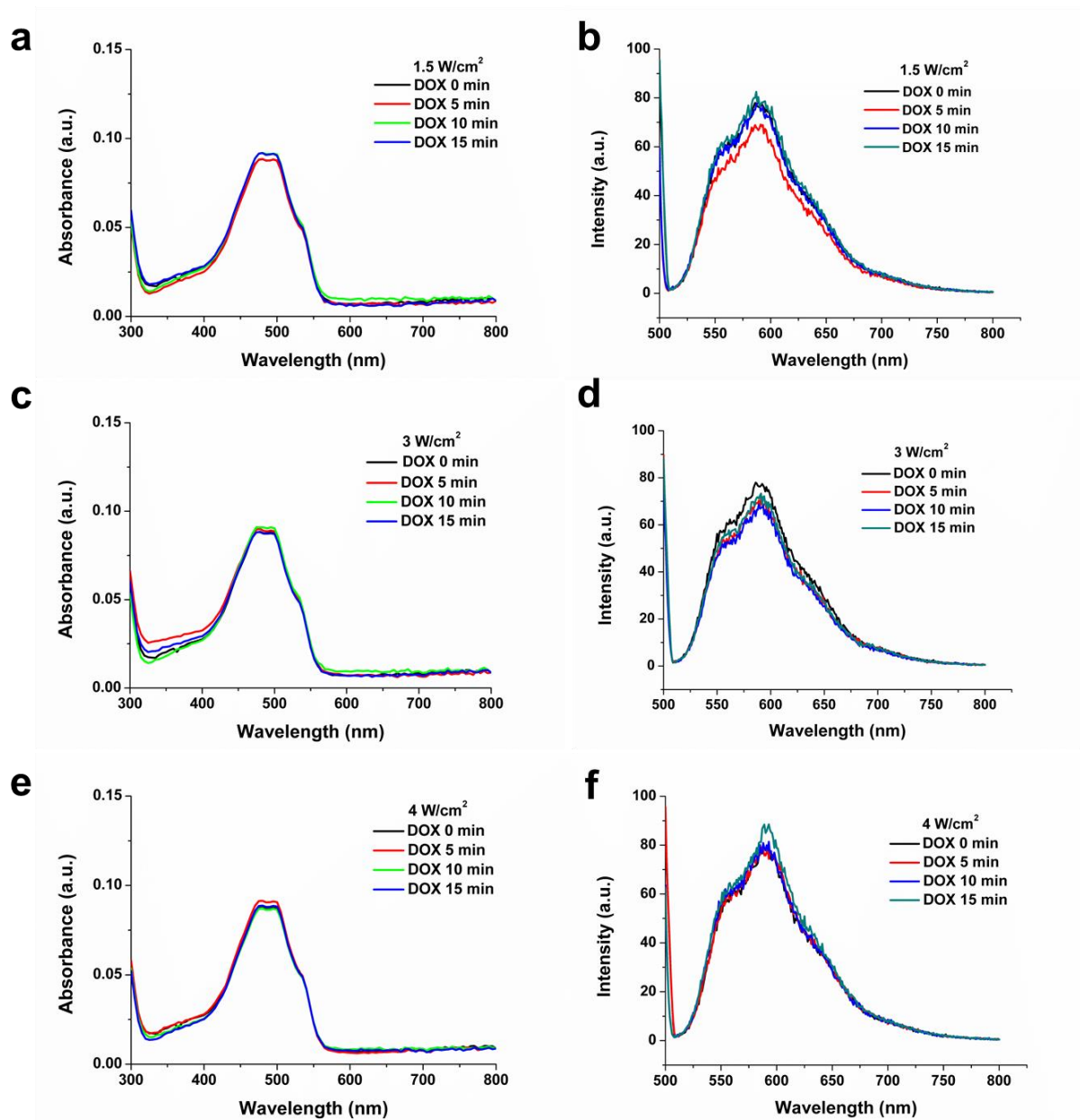


Figure S5. Time-dependent (5 min, 10 min and 15 min) influence of DOX under 808 nm laser irradiation in different powers. (a) DOX absorbance in UV-vis-NIR and (b) fluorescence spectra with laser irradiation of 1.5 W/cm², (c) DOX absorbance in UV-vis-NIR and (d) fluorescence spectra with laser irradiation of 3 W/cm² and (e) DOX absorbance in UV-vis-NIR and (f) fluorescence spectra with laser irradiation of 4 W/cm². (The initial concentrations of DOX was 10 μ M.)

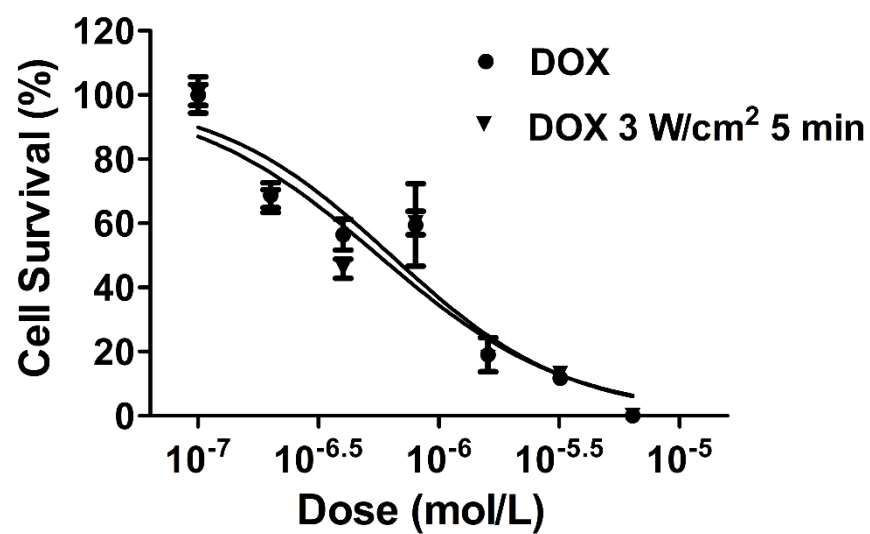


Figure S6. IC50 curve of MDA-MB-231 cells treated with DOX exposed to laser (3 W/cm², 5 min).

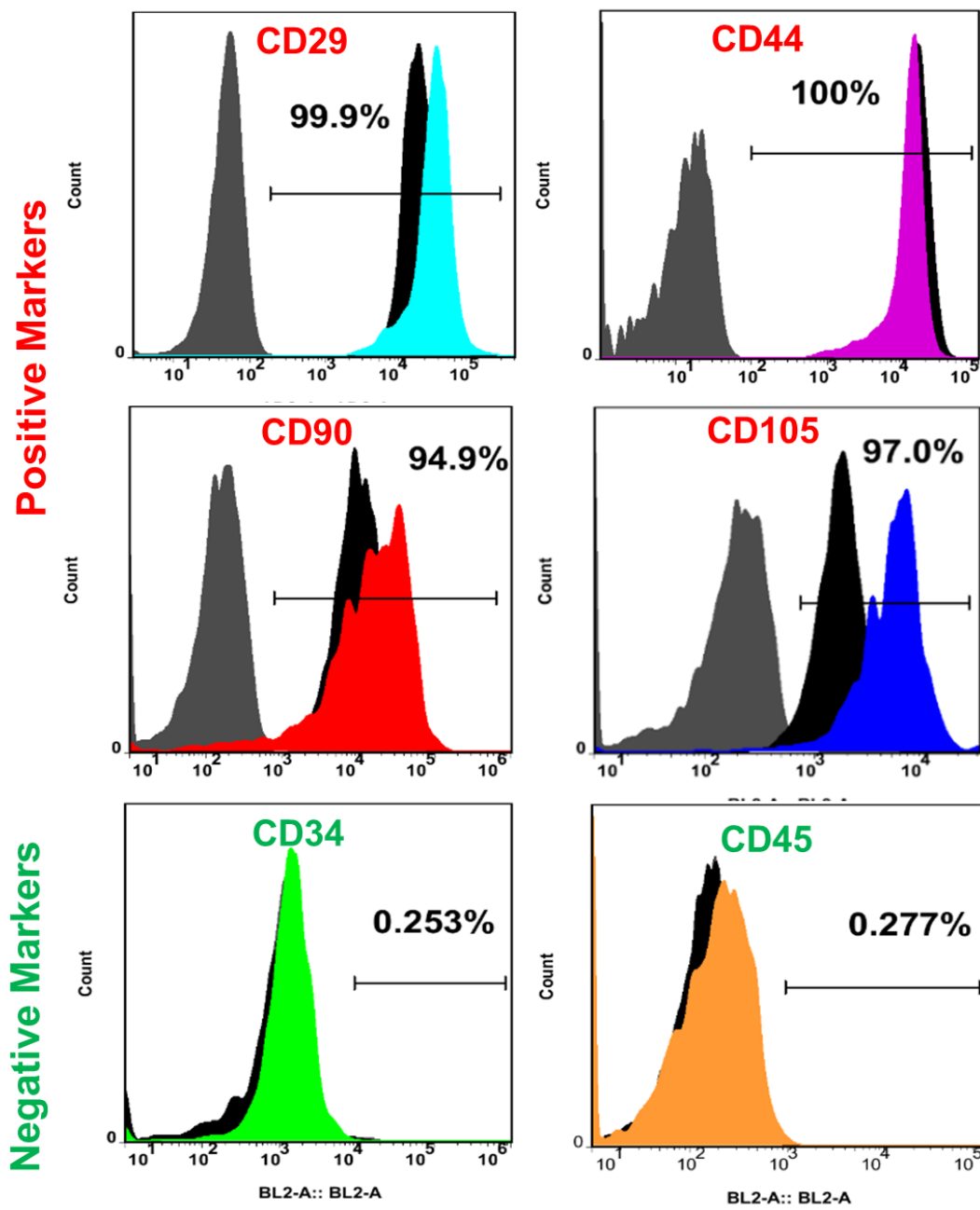


Figure S7. Specific surface markers of stem cells expression on MSCs treated with LDGI after 72 h tested by Flow cytometry.

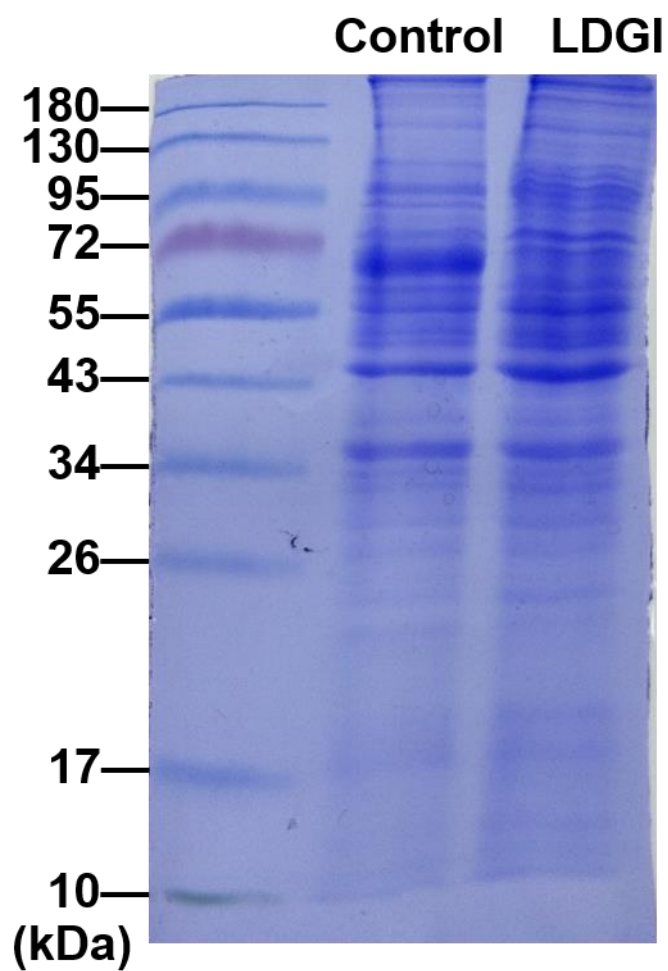


Figure S8. SDS-PAGE protein analysis. Samples were stained with Coomassie brilliant blue kit. MSCs-LDGI supernatant extracellular vesicles were collected 24 h after incubation, and MSCs supernatant extracellular vesicles were collected as control.

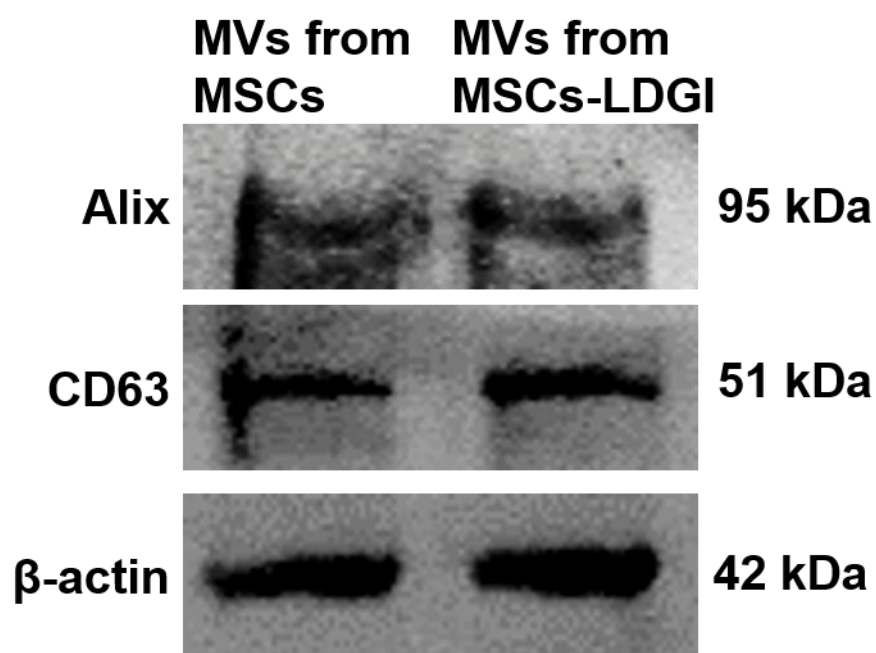


Figure S9. Cell exosome protein expression on MVs from MSCs and MSCs-LDGI, respectively.

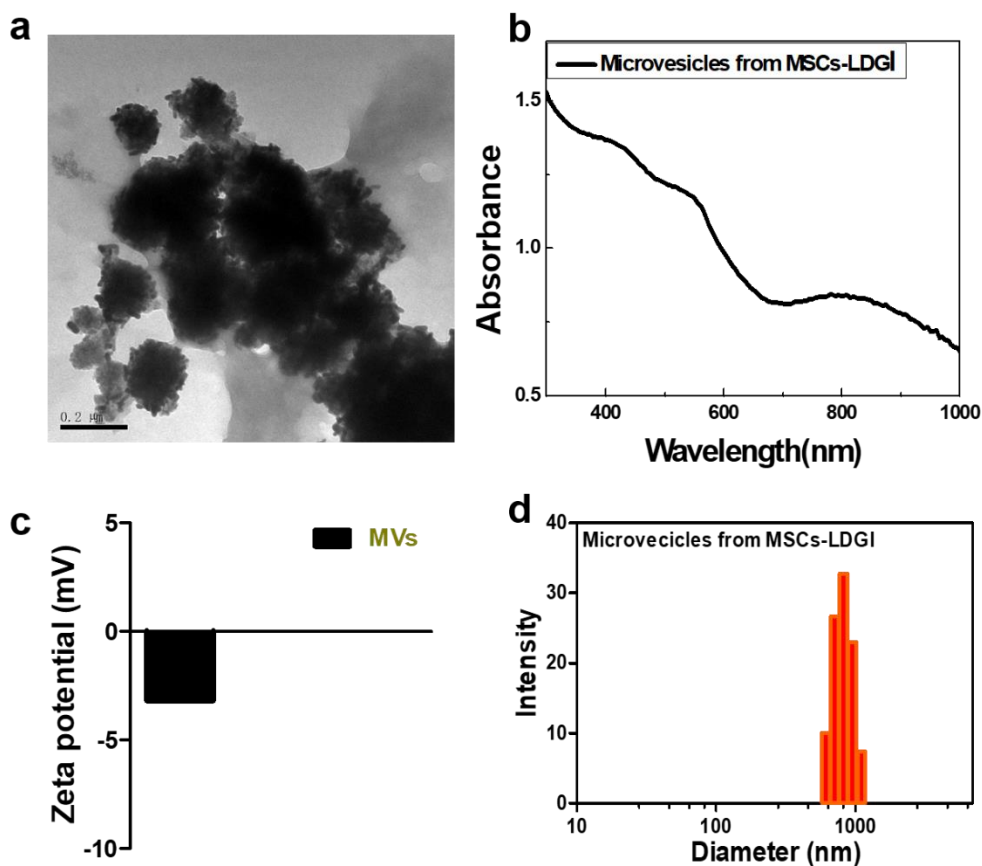


Figure S10. Characterization of microvesicles from MSCs-LDGI. (a) Representative TEM image of microvesicles from MSCs-LDGI. (b) UV-vis-NIR spectra of microvesicles from MSCs-LDGI. (c) Zeta potential of microvesicles from MSCs-LDGI in PBS. (e) Size distribution of microvesicles from MSCs-LDGI in PBS.

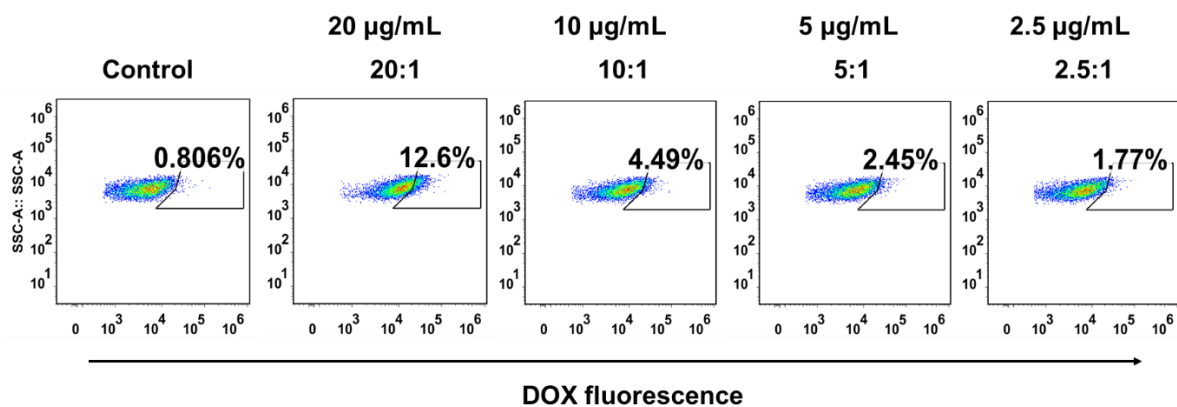


Figure S11. DOX fluorescence of MDA-MB-231 cells treated with MVs from MSCs-LDGI with different concentrations (20:1, 10:1, 5:1, 2.5:1).

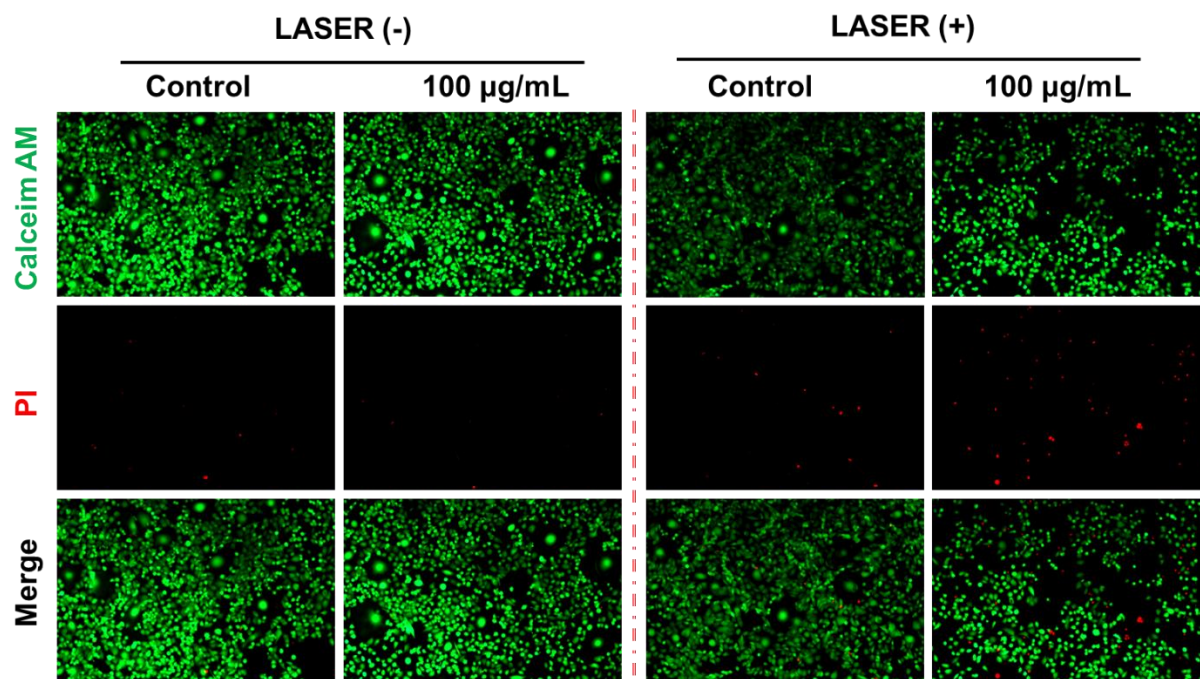


Figure S12. LIVE/DEAD cell viability tests of MDA-MB-231 cells treated with MVs from MSCs-LDGI with and without laser irradiation (3 W/cm^2).

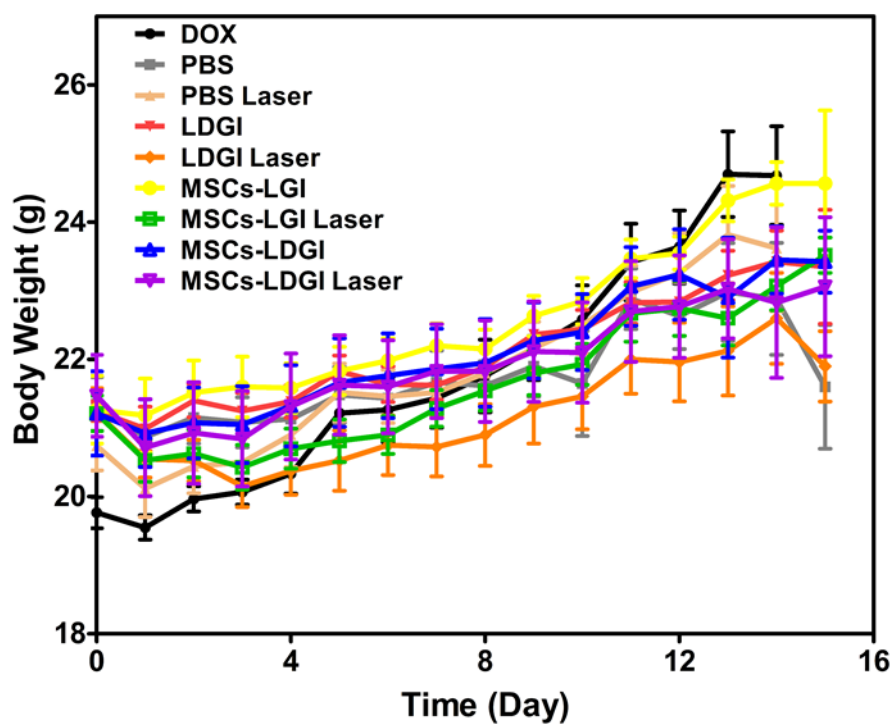


Figure S13. Body weight curves of mice intratumorally injected with DOX, PBS, LDGI, MSCs-LDI, MSCs-LDGI with and without NIR laser.

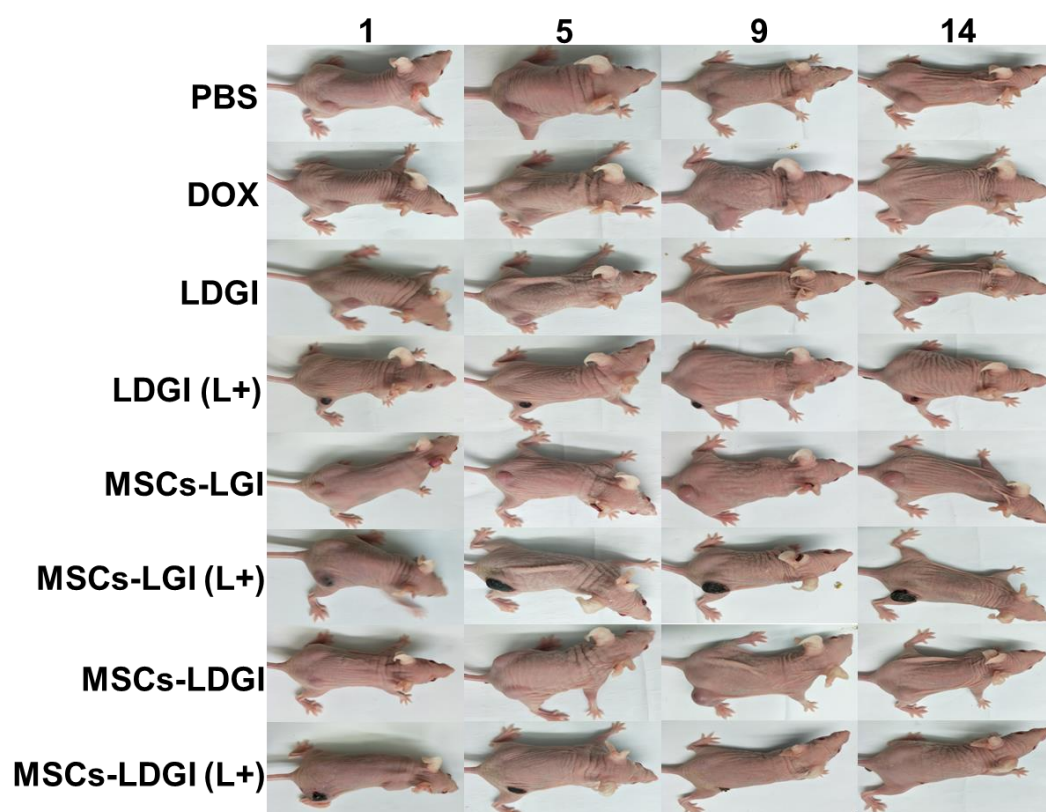


Figure S14. Images of mice of intravenous injected with DOX, PBS, LDGI, MSCs-LDI, MSCs-LDGI with and without NIR laser irradiation within 15 days.