Electronic Supplementary Material (ESI) for Nanoscale.

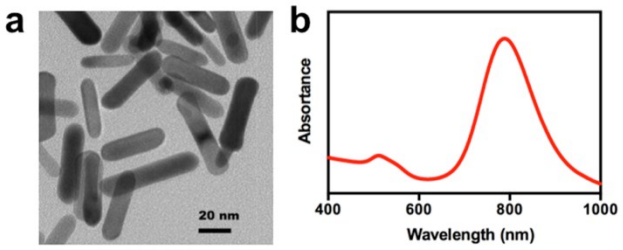

Figure S1. (a) TEM image and (b) UV-vis spectrum of GNRs.

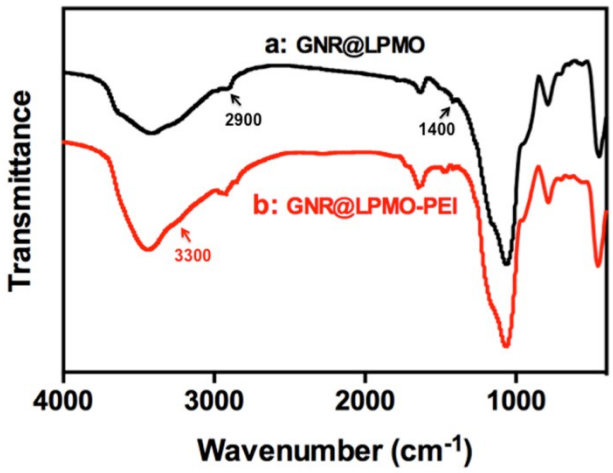

Figure S2. FTIR spectroscopy of the GNR@LPMO and GNR@LPMO-PEI nanoparticles.

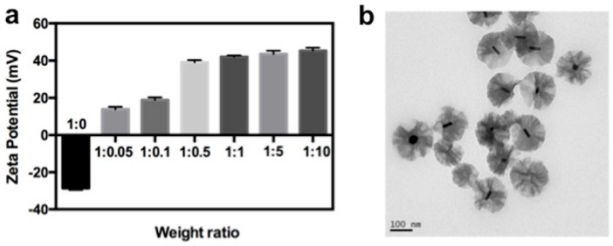

Figure S3. (a) Zeta potentials of the GNR@LPMO nanospheres coated with different amounts of PEI, (b) TEM image of GNR@LPMO-PEI nanospheres (weight ratio = 1:0.5).

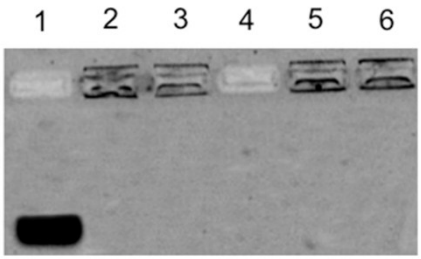

Figure S4. RNase protection assay. Lane 1: free siRNA; Lane 2-3: GNR@LPMO-siRNA complex nanoparticles with different weight ratio of 32, and 64; Lane 4: free siRNA + RNase A/T1; Lane 5-6: GNR@LPMO-siRNA + RNase A/T1, wight ratio = 32, and 64.

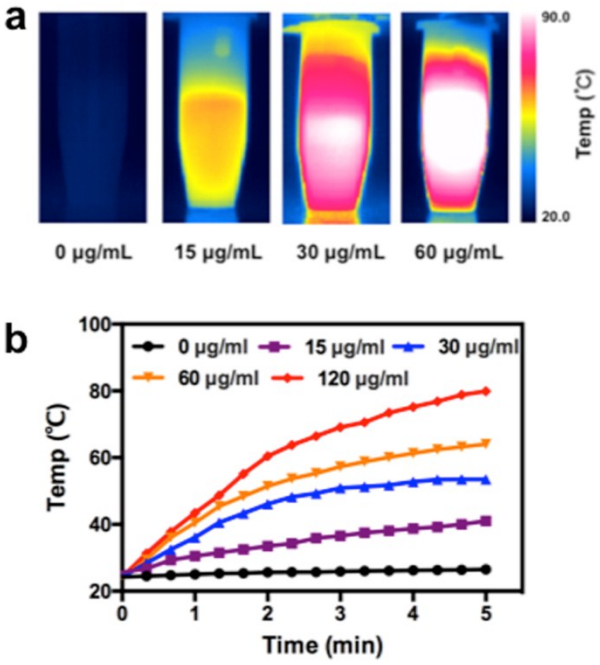

Figure S5. (a) Infrared thermal images of different concentrations of GNR@LPMO upon 808 nm laser irradiation (1.0 W/cm^2, 5 min), (b) temperature increasing curves of different concentrations of GNR@LPMOs upon 808 nm laser irradiation in MEM solutions.

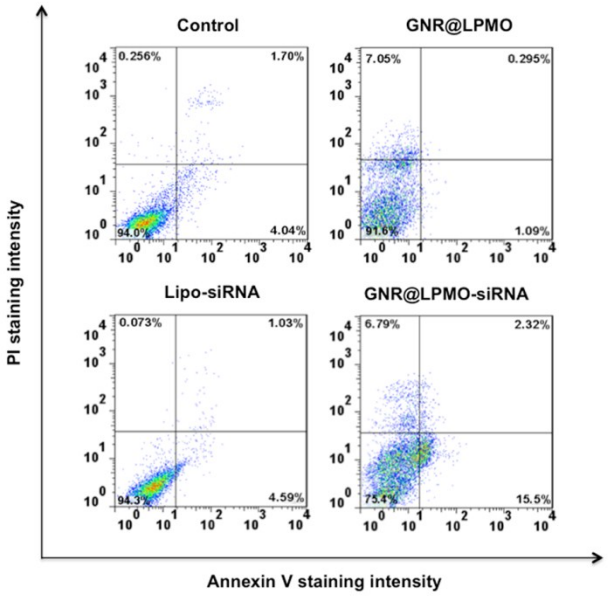

Figure S6. Cell apoptotic assay. Cell apoptosis was analyzed by flow cytometry in MDA-MB-231 LUC cells without treatment (control), treated with GNR@LPMO, Lipo-siRNA, GNR@LPMO-siRNA as external management.

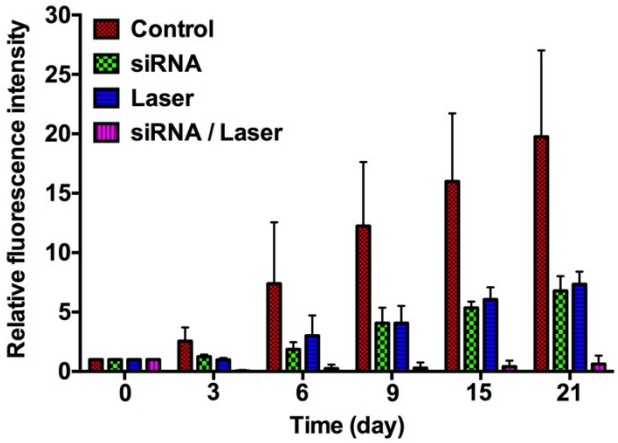

Figure S7. Relative fluorescence intensity of MDA-MB-231 LUC tumor-bearing mice after different treatments.

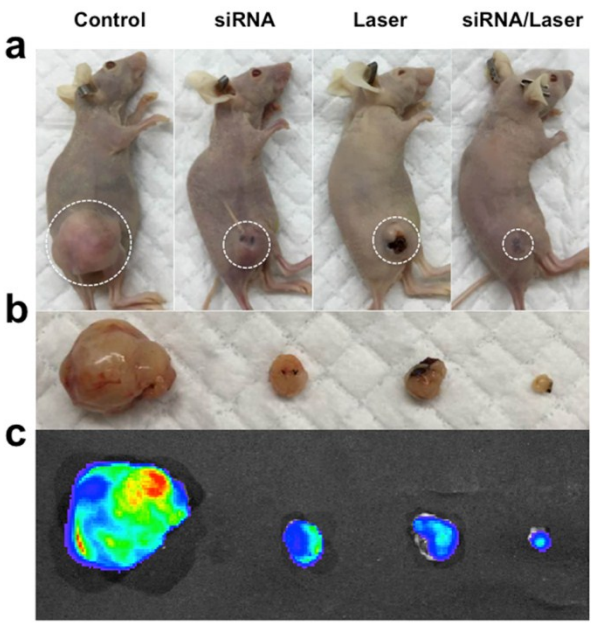

Figure S8. Representative photos of MDA-MB-231 LUC tumor-bearing mice, and the resected tumors (bioluminescence) photographs (b, c) from different groups at 21 day post-treatment.