Supporting Information

Quercetin encapsulated biodegradable plasmonic nanoparticles for photothermal therapy of hepatocellular carcinoma cells

Arpan Pradhan, Anuradha Kumari, Rohit Srivastava* and Dulal Panda*

1Department of Biosciences and Bioengineering, Indian Institute of Technology (IIT) Bombay, Powai, Mumbai, 400076, India

Corresponding Authors

*E-mail: rsrivasta@iitb.ac.in.

*E-mail: panda@iitb.ac.in.
**Figure S1:** Characterization of Au nanostructures and LiposAu nanoparticles. A) Absorbance spectra of Au nanostructures in absence of template (liposomes). Inset shows a digital photograph of Au nanostructures in absence of template (liposomes). B) TEM micrograph of Au nanostructures in absence of template (liposomes). Inset shows SAED pattern of Au nanostructures in absence of template (liposomes). C) TEM micrograph of (i) Lipos nanoparticles, (ii) LiposAu nanoparticles, (iii) SAED pattern and (iv) EDAX spectra of LiposAu nanoparticles.
Figure S2: A) QE release profile for QE-Lipos at 37 and 45 °C. Error bars represent standard deviation (S.D). B) Tuning of NIR absorbance spectra of LiposAu nanoparticles by varying ascorbic acid concentration. ** (p < 0.005).
Figure S3: A) Absorbance spectra of QE-LiposAu nanoparticles before and after five ON/OFF cycles of 750 nm NIR laser (650 mW, 3 W cm\(^{-2}\)) irradiation. B) Heating and cooling curve of water when 750 nm NIR laser (650 mW, 3 W cm\(^{-2}\)) irradiation is on and off respectively. Error bars represent standard deviation (S.D). C) Time vs. natural logarithm of temperature (\(\theta\)) to calculate the thermal time constant \(\tau_s\) for water.
Figure S4: A) Biocompatibility of LiposAu nanoparticles in L929 cells. DMEM media and Triton X-100 (1 %) were used as a negative control (NC) and positive control (PC), respectively. B) 750 nm NIR laser (650 mW, 3 W cm\(^{-2}\)) irradiation time optimization in Huh-7 cells. DMEM media and Triton X-100 (1 %) were used as a negative control (NC) and positive control (PC) respectively. C) LiposAu nanoparticles concentration and 750 nm NIR laser (650 mW, 3 W cm\(^{-2}\)) irradiation time optimization in Huh-7 cells. D) Half-maximal inhibitory concentration (IC\(_{50}\)) of QE in Huh-7 cells. *** (p < 0.0005). Error bars represent standard deviation (S.D).
Figure S5: Quantification of mean fluorescence intensity using Zen software. A) Hsp70 mean fluorescence intensity. B) Microtubules mean fluorescence intensity. C) γ-H2A.X foci mean fluorescence intensity. * (p < 0.05), **** (p < 0.0001). Error bars represent standard error (S.E).