Electronic Supplementary Information

NaYF₄:Yb/Er@PPy Core-Shell Nanoplates: An Imaging-Guided Multimodal Platform for Photothermal Therapy of Cancers

Xiaojuan Huangᵃ†, Bo Liᵃ†, Chen Pengᵇ†, Guosheng Songᵃ, Yuxuan Pengᵃ, Zhiyin Xiaoᵃ, Xijian Liuᵃ, Jianmao Yangᶜ, Li Yuᵈ, Junqing Hu**

ᵃ State Key Laboratory for Modification of Chemical Fibers and Polymer Materials, College of Materials Science and Engineering, Donghua University, Shanghai 201620, China.
ᵇ Department of Radiology, Shanghai Tenth People’s Hospital, Tongji University, Shanghai 200072, China.
ᶜ Research Center for Analysis and Measurement, Donghua University, Shanghai 201620, China.
ᵈ Ian Wark Research Institute, University of South Australia, Mawson Lakes 5095, Australia.
* Corresponding Author.
Figure S1. The left side is a photo showing the oil acid-NaYF₄:Yb/Er nanoplates dispersed in cyclohexane/water, and the right side is the PVA-NaYF₄:Yb/Er nanoplates dispersed in cyclohexane/water.
Figure S2. FTIR spectra of oil acid-NaYF₄:Yb/Er (black line), PVA-NaYF₄:Yb/Er (blue line), and NaYF₄:Yb/Er@PPy nanoplates (red line).
Figure S3. Dynamic light scattering (DLS) diameter distribution of the NaYF₄:Yb/Er@PPy nanoplates.
Figure S4. TGA curve of PPy and the disc-shaped NaYF$_4$:Yb/Er@PPy nanoplates.
Figure S5. TEM images of nanocomposites with more Fe$^{3+}$ (5 mL) added: a) 3.31 mg L$^{-1}$, b) 6.61 mg L$^{-1}$. 
Figure S6. UV-vis absorbance spectrum for the aqueous dispersion of the PPy.
Figure S7. (a) UV-Vis-NIR absorption spectra of NaYF₄:Yb/Er@PPy nanoplates with different concentrations (from top to bottom are 0.5, 0.25, 0.125, 0.063, 0.031 mg/mL). (b) Corresponding linear relationship of the absorbance at 915 nm versus concentrations.
Figure S8. a) UV-vis absorbance spectrum for the aqueous dispersion of hexagonal NaYF$_4$:Yb/Er@PPy nanoplates. b) Temperature elevation of the dispersion of the hexagonal NaYF$_4$:Yb/Er@PPy nanoplates, under an exposure of NIR light (915 nm, 0.5 W cm$^{-2}$) for 5 min, and then the laser was shut off.
Figure S9. TEM images of the disc-shaped NaYF$_4$:Yb/Er@PPy nanoplates a) before and b) after the laser (915 nm, 0.5 W cm$^{-2}$) irradiation for 25 min.
Figure S10. In vitro cell viabilities of Hela Cells incubated with the aqueous dispersion of the NaYF₄:Yb/Er@PPy nanoplates with different concentrations for 24 h.
Figure S11. A photograph showing the typical experimental setup for in vivo infrared thermal imaging and photothermal ablation.
Figure S12. The representative hematoxylin and eosin stained histological images of ex vivo tumor sections treated by the irradiation of 915 nm laser (0.5 W/cm²) over a period of 10 min injected with: PBS (left) and the aqueous dispersion of NaYF₄:Yb/Er@PPy nanoplates (right).