

Supplementary Materials: Preparation of Magnetic-Luminescent Bifunctional Rapeseed Pod-like Drug Delivery System for Sequential Release of Dual Drugs

Junwei Xu , Yunxue Jia , Meili Liu , Xuenan Gu , Ping Li , and Yubo Fan

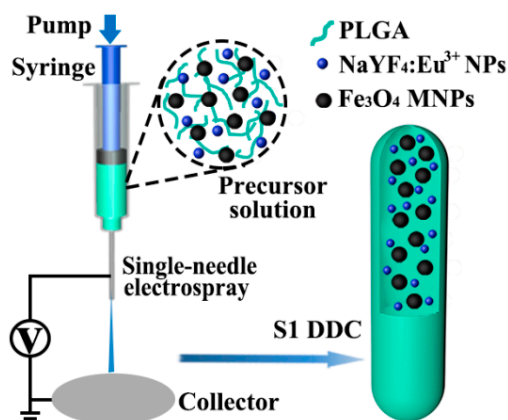


Figure S1. Schematic illustration of preparing magnetic-fluorescent bifunctional rapeseed pod-like [NaYF₄:Eu³⁺/Fe₃O₄/PLGA] DDCs (denoted as S1) via single-needle electrospray.

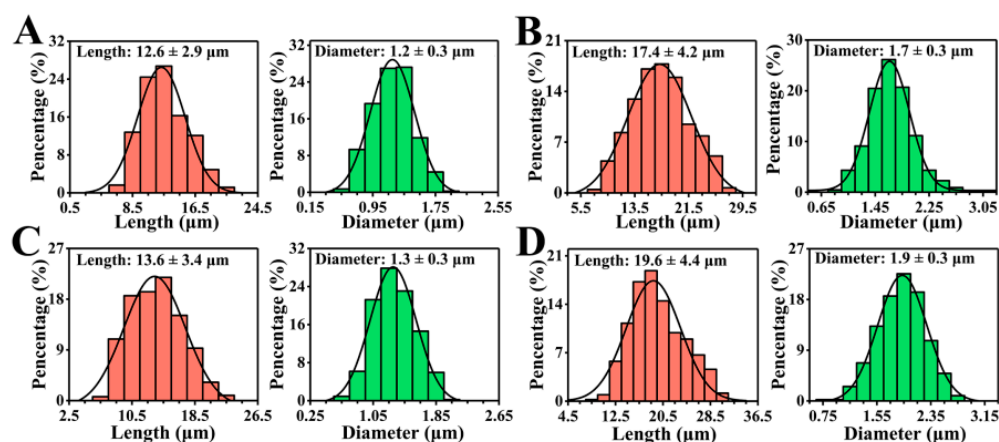


Figure S2. Length and diameter distributions of DDCs: (A) S1 DDCs, (B) D1 DDCs, (C) S2 DDCs, (D) D2 DDCs; for each kind of DDCs, the length and diameter of at least 400 microparticles' were measured by using the software of image J 1.48v.

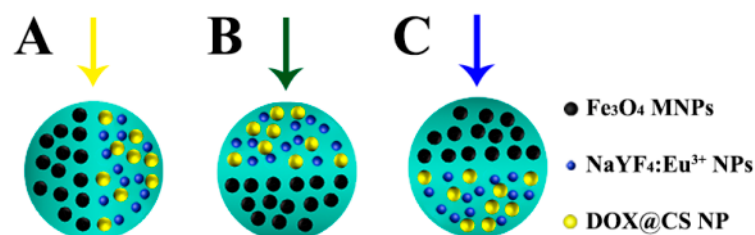


Figure S3. Three typical cross-sectional schematic diagrams of D2 DDC collected on the collector: (A) double chambers were left/right distributed; (B) and (C) double chambers were up/down distributed, (B) the chamber embedded with NaYF₄:Eu³⁺ NPs and CS NPs facing upward and (C) the chamber containing Fe₃O₄ MNPs facing upward.

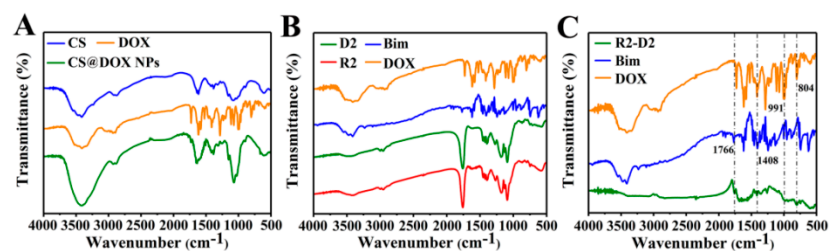


Figure S4. (A) FTIR spectra of CS, DOX and DOX@CS NPs; the characteristic peaks at 1733 and 1417 cm⁻¹ belong to DOX and the characteristic peaks in the FTIR spectra of DOX@CS NPs at 3421 and 1064 cm⁻¹ were significantly enhanced compared to CS. (B) FTIR spectra of Bim, DOX, D2 DDSs and R2 DDSs; (C) FTIR spectra of Bim and DOX, and infrared subtractive spectrum analysis of R2 DDSs and D2 DDSs; the characteristic peaks at 1766 cm⁻¹ corresponded to the stretching vibration of C=N in Bim, at 1408 cm⁻¹ indicated the vibration of C-H on the benzene ring of DOX or Bim, and at 991 and 804 cm⁻¹ attributed to the vibration of C-C=O and benzene ring in DOX, respectively.