

Supporting Information for

In Situ Synthesis of Fluorescent Mesoporous Silica-Carbon Dot

Nanohybrids Featuring Folate Receptor-Overexpressing Cancer Cell

Targeting and Drug Delivery

Shuai Zhao^{1, 2}, Shan Sun^{2, *}, Kai Jiang², Yuhui Wang², Yu Liu³, Song Wu³, Zhongjun Li⁴, Qinghai Shu^{1, 3, *}, Hengwei Lin^{2, *}

¹School of Material Science and Engineering, Beijing Institute of Technology, Beijing 100081, People's Republic of China

²Key Laboratory of Graphene Technologies and Applications of Zhejiang Province, Ningbo Institute of Materials Technology & Engineering, Chinese Academy of Sciences, Ningbo 315201, People's Republic of China

³The Affiliated Luohu Hospital of Shenzhen University, Shenzhen Luohu Hospital Group, Shenzhen 518001, People's Republic of China

⁴College of Chemistry and Molecular Engineering, Zhengzhou University, Zhengzhou, 450001, People's Republic of China

*Corresponding authors. E-mail: sunshan@nimte.ac.cn (Shan Sun); qhshu121@bit.edu.cn (Qinghai Shu); linhengwei@nimte.ac.cn (Hengwei Lin)

Supplementary Figures and Table

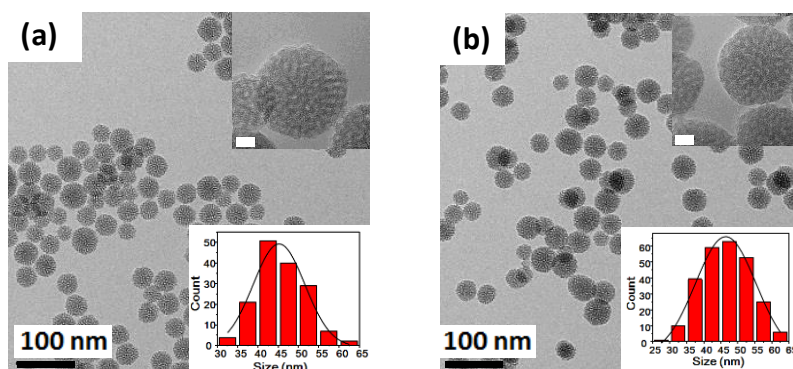


Fig. S1 TEM images of **a** MSNs and **b** MSNs-NH₂. Inset: high resolution images (scale bar: 10 nm) and size distributions

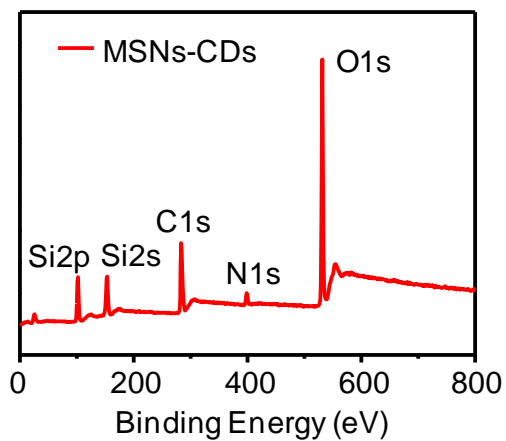


Fig. S2 XPS spectrum of MSNs-CDs

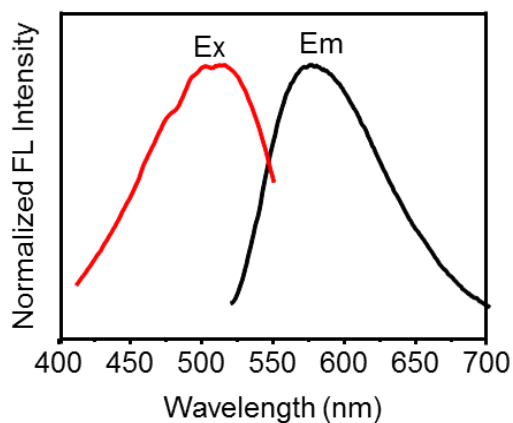


Fig. S3 Fluorescence excitation spectrum (red line, $\lambda_{em}=580$ nm) and emission spectrum (black line, $\lambda_{ex}=510$ nm) of MSNs-CDs

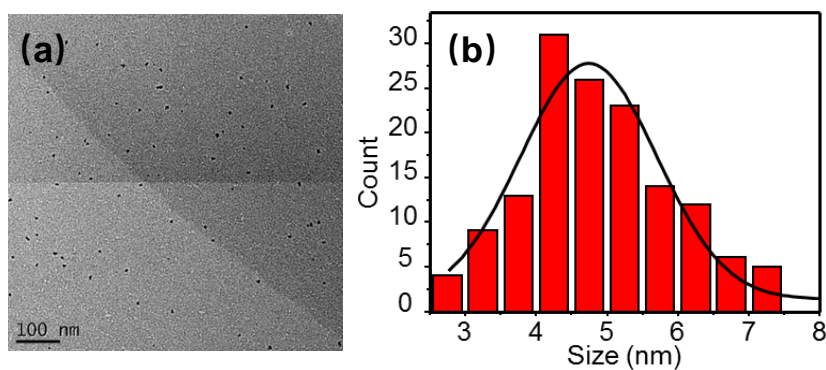


Fig. S4 a TEM image of the CDs harvested from MSNs-CDs with the treatment by HF; **b** Size distribution of the CDs

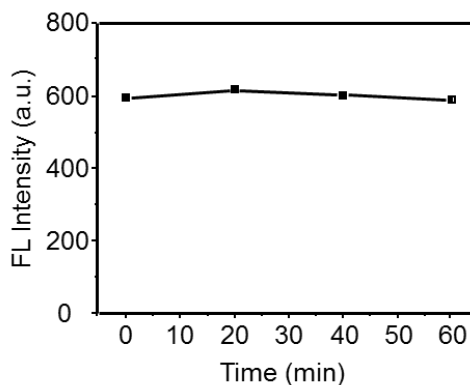


Fig. S5 Photostability of the MSNs-CDs ($200 \mu\text{g mL}^{-1}$) under continuous irradiation of ultraviolet light

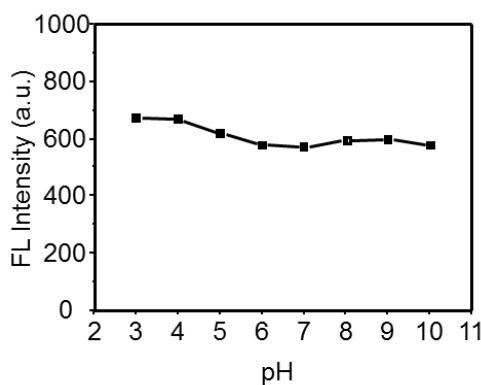


Fig. S6 Fluorescence emission intensities ($\lambda=580 \text{ nm}$) of the MSNs-CDs ($200 \mu\text{g mL}^{-1}$) at different pH values

Table S1 Parameters of mesoporous structure, including specific surface area, pore size, and pore volume of MSNs, MSNs-NH₂, and MSNs-CDs

Sample	S_{BET}^a (m^2/g)	V_t^b (cm^3/g)	D_{BJH}^c (nm)
MSNs	760.95	1.42	3.12
MSNs-NH ₂	554.16	1.22	2.48
MSNs-CDs	502.94	0.88	2.20

^a S_{BET} : specific surface area based on BET method; ^b V_t : total pore volume at $P/P_0 = 0.974$ based on BJH analysis; ^c D_{BJH} : averaged pore diameter based on BJH analysis of desorption isotherm.