Supporting Information

Intelligent Janus Nanoparticle for Intracellular Real-time

Monitoring Dual Drug Release

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Content

1. Fig. S1 Size distribution of CMR-MS, Janus Bare NP and Janus Dox/6MP NP.

2. Fig. S2 FTIR spectra of MS, CMR-MS, Janus Bare NP and Janus Dox NP.

3. Fig. S3 Nitrogen adsorption/desorption isotherms of CMR-MS, Janus 6MP NP and Janus Dox/6MP NP.

4. Fig. S4 UV-Vis absorbance spectrum of Dox and fluorescent emission spectrum of CMR excited by 405 nm light.

5. Fig. S5 Raman spectra of Janus Dox/6MP NP, Janus Dox NP, pristine 6MP and GSH.

6. Fig. S6 Raman spectra of Janus Dox/6MP NPs incubated with PBS (pH = 5.0) and Janus Dox NPs incubated with GSH (5 mM) for different times.

7. Fig. S7 UV-Vis absorbance spectra of Dox and 6MP.

8. Fig. S8. Decrease of the SERS intensity with time after GSH-OEt injection into the Hela cells internalized Janus Dox/6MP NP.

9. Fig. S9. In vitro cytotoxicity of Janus Dox NP, Janus 6MP NP and Janus Dox/6MP NP incubated with MDA-MB-231 cells for 48 h at different concentrations.

10. Table S1. BET and BJH parameters of CMR-MS, Janus 6MP NP and Janus Dox/6MP NP.

11. Table S2. IC₅₀ values of Dox in different formulations.

12. Table S3. IC₅₀ values of 6MP in different formulations.



Fig S1. Size distribution of CMR-MS, Janus Bare NP and Janus Dox/6MP NP in DI water (pH 7.0).



Fig S2. FTIR spectra of MS, CMR-MS, Janus Bare NP and Janus Dox NP.



Fig S3. Nitrogen adsorption (closed)/desorption (open) isotherms of CMR-MS (\blacksquare, \Box), Janus 6MP NP (\blacktriangle, Δ) and Janus Dox/6MP NP (\bullet, \circ).



Fig S4. UV-Vis absorbance spectrum of Dox and fluorescent emission spectrum of CMR excited by 405 nm light.



Fig S5. Raman spectra of Janus Dox/6MP NP, Janus Dox NP, pristine 6MP and GSH. All samples were aqueous solutions, and pristine 6MP and GSH were measured in aqueous solutions in the presence of Janus Bare NPs.



Fig S6. Raman spectra of (A) Janus Dox/6MP NPs incubated with PBS (pH = 5.0) for different times and (B) Janus Dox NPs incubated with GSH (5 mM) for different times (compared with Janus Dox/6MP NP).



Fig S7. UV-Vis absorbance spectra of Dox and 6MP.



Fig S8. Decrease of the SERS intensity with time after GSH-OEt injection into the Hela cells internalized Janus Dox/6MP NP. Five different locations within one cell were chosen to acquire the SERS signals for average.



Fig S9. In vitro cytotoxicity of Janus Dox NP, Janus 6MP NP and Janus Dox/6MP NP incubated with MDA-MB-231 cells for 48 h at different concentrations.

| | S _{BET} | Pore volume | BJH pore diameter |
|------------------|------------------|-------------------------|--------------------------|
| | (m^2g^{-1}) | Vp (cm ³ /g) | $V_{BJH}\left(nm ight)$ |
| CMR-MS | 914.95 | 0.90 | 3.23 |
| Janus 6MP NP | 715.75 | 0.62 | 3.18 |
| Janus Dox/6MP NP | 230.14 | 0.33 | / |

Table S1. BET and BJH parameters of CMR-MS, Janus 6MP NP and Janus Dox/6MP NP.

Table S2. IC₅₀ values of Dox in different formulations for Hela cells.

| | Free Dox | Janus Dox NP | Free Dox + 6MP | Janus Dox/6MP NP |
|--------------------------|----------|--------------|----------------|------------------|
| IC ₅₀ (µg/mL) | 2.98 | 2.49 | 1.73 | 1.15 |

| | Free 6MP | Janus 6MP NP | Free Dox + 6MP | Janus Dox/6MP NP |
|--------------------------|----------|--------------|----------------|------------------|
| IC ₅₀ (µg/mL) | 7.43 | 4.19 | 1.06 | 1.27 |

Table S3. IC_{50} values of 6MP in different formulations for Hela cells.