

Supporting Information

Drug release switch based on protein-inhibitor supramolecular interaction

Xiaoliang Wang,^a Pengchang Liu,^a Zhijun Chen,^{*a} Jiacong Shen^a

^a State Key Laboratory of Supramolecular Structure and Materials, Institute of Theoretical Chemistry, and International Joint Research Laboratory of Nano-Micro Architecture Chemistry, Jilin University, 2699 Qianjin Street, Chaoyang, Changchun, Jilin 130012, People's Republic of China

Corresponding Author

*Telephone: +86-186-8663-6807 Fax: +86-431-8519-3421.

E-mail: zchen@jlu.edu.cn.

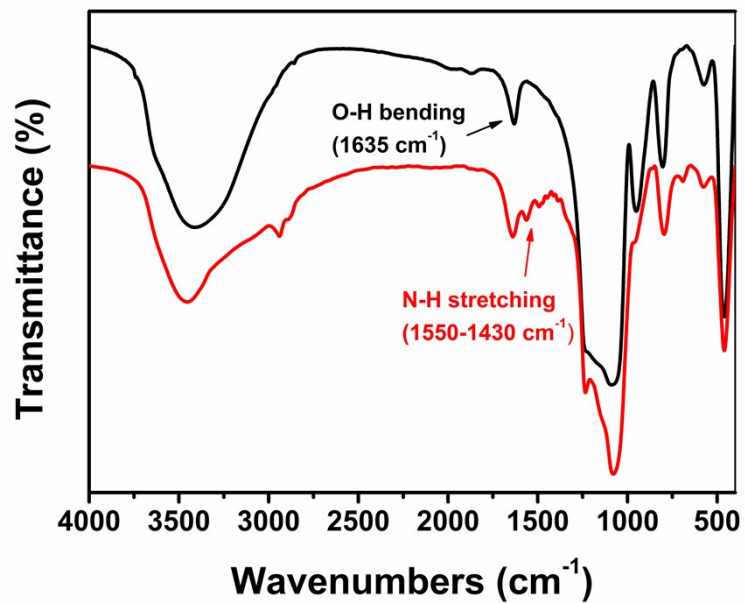


Figure S1 The FT-IR spectra of the MSN-OH (black) and MSN-NH₂ (red). The twin peaks (stretching vibration of N-H bond) at 1430–1550 cm^{-1} indicate the presence of amino groups.

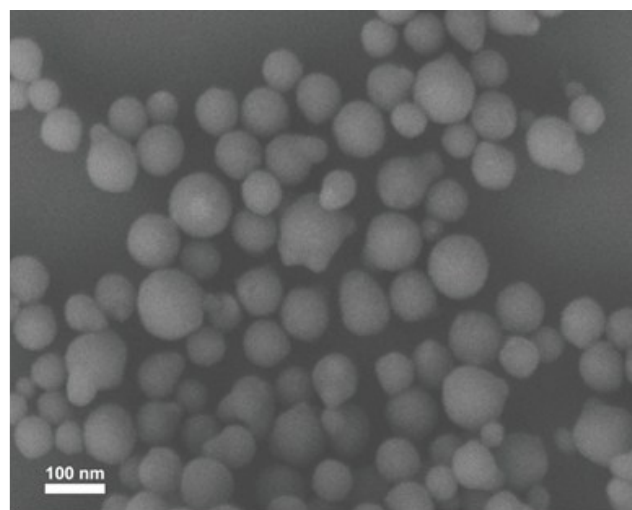


Figure S2 The SEM image of the MSN-OH nanoparticles.

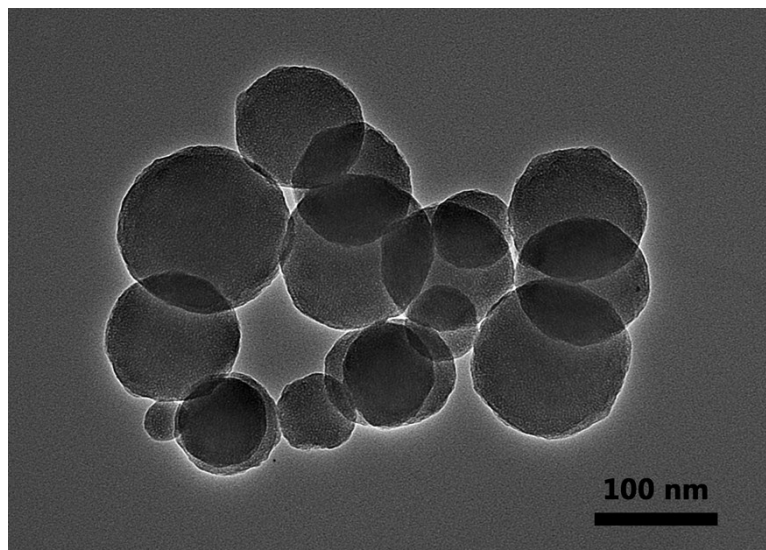


Figure S3 The TEM image of the MSN-NH₂ nanoparticles.

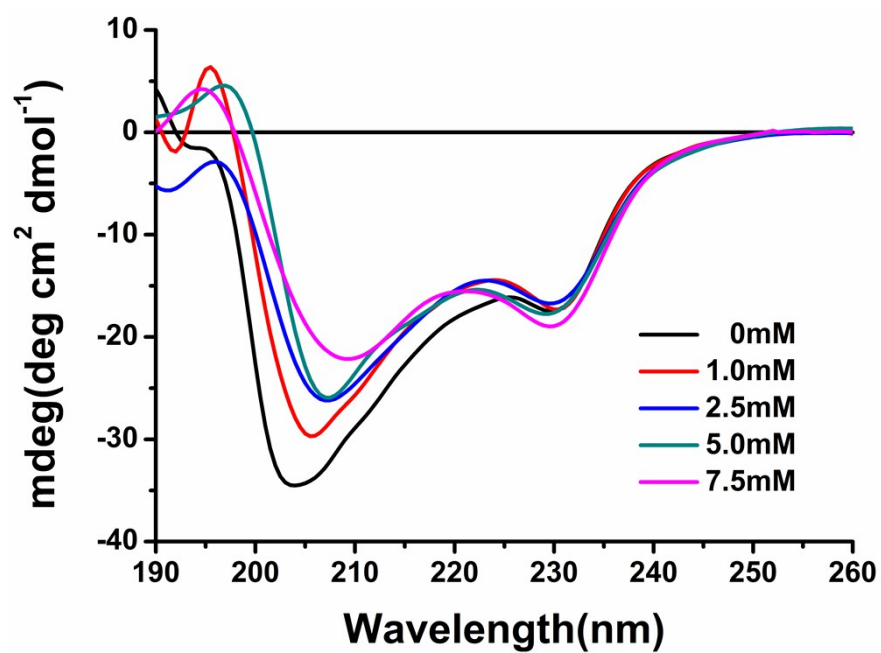


Figure S4 The CD spectra of CTFA in the absence (0 mM) and presence of different concentration of PMSF (0–7.5 mM).

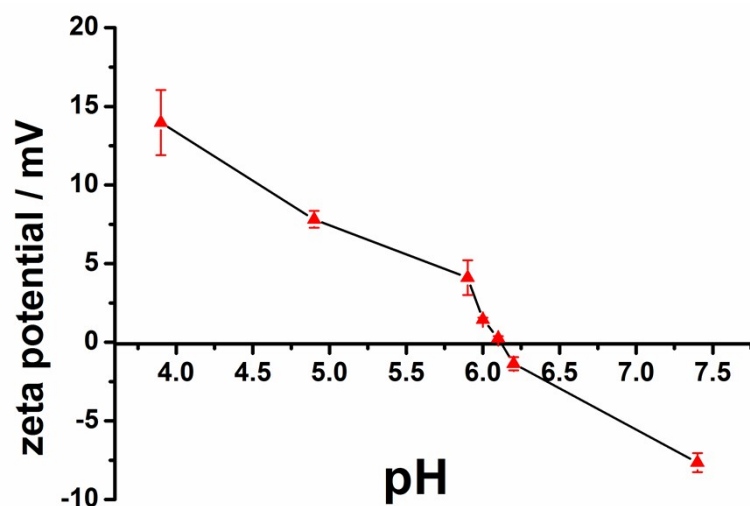


Figure S5 Zeta potential of CTRA at different pHs. (The error bars represent the standard deviation of three measurements.)

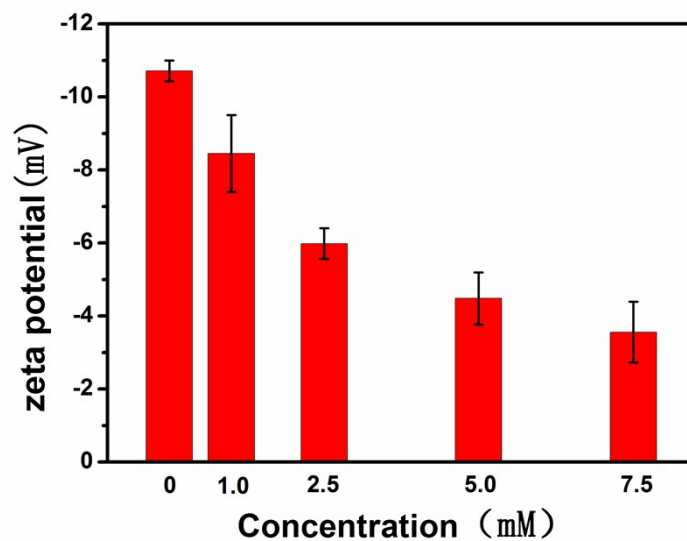


Figure S6 Zeta potential of CTRA under different concentration of PMSF.

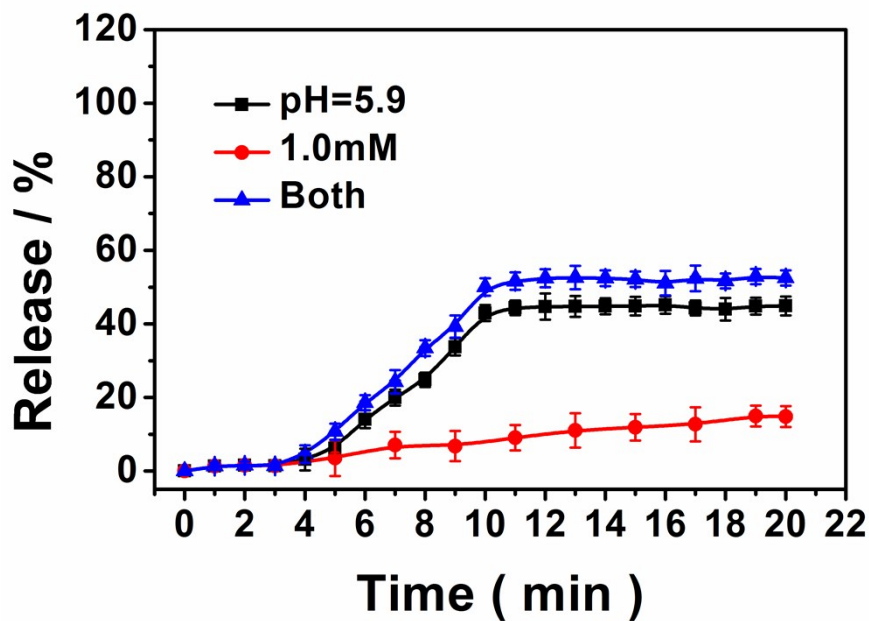


Figure S7 The cargo release of CTRA-MSN-NH₂@Rh 6G is approximately 42% at pH 5.9; the cargo release is approximately 14% when PMSF concentration is 1.0 mM; the cargo release is approaching 52% when both conditions are met (PMSF concentration is 1.0 mM, environmental pH is 5.9)

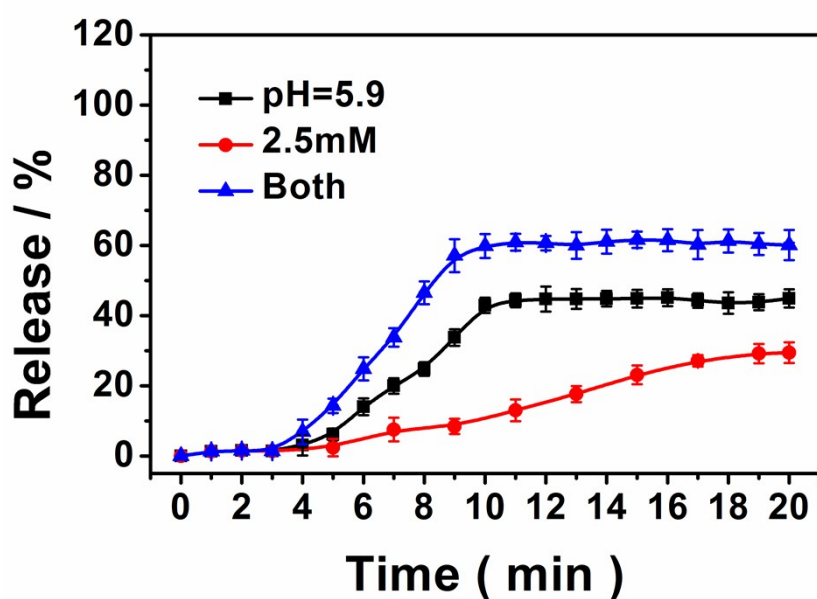


Figure S8 The cargo release of CTRA-MSN-NH₂@Rh 6G is approximately 42% at

pH 5.9; the cargo release is approximately 29% when PMSF concentration is 2.5 mM; the cargo release is approaching 60% when both conditions are met (PMSF concentration is 2.5 mM, environmental pH is 5.9).

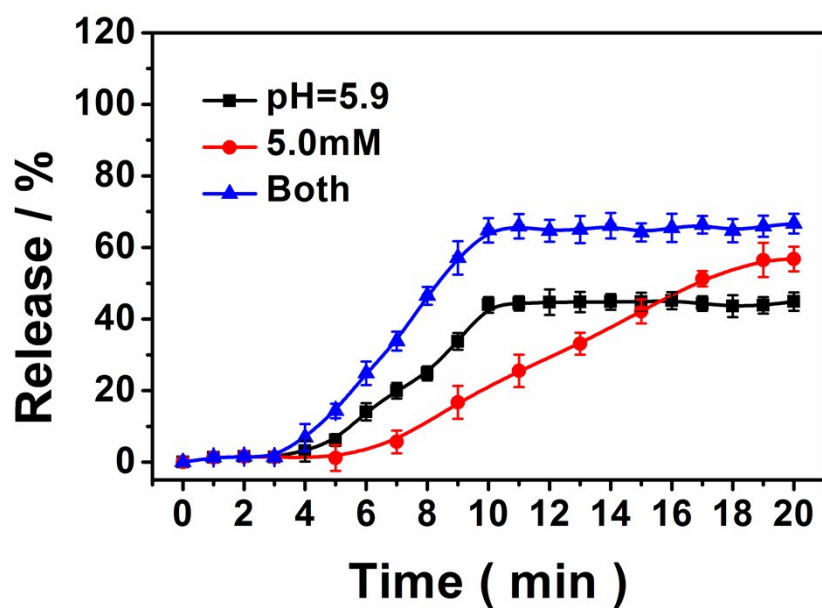


Figure S9 The cargo release of CTRA-MSN-NH₂@Rh 6G is approximately 42% at pH 5.9; the cargo release is approximately 60% when PMSF concentration is 5.0 mM; the cargo release is approaching 70% when both conditions are met (PMSF concentration is 5.0 mM, environmental pH is 5.9).

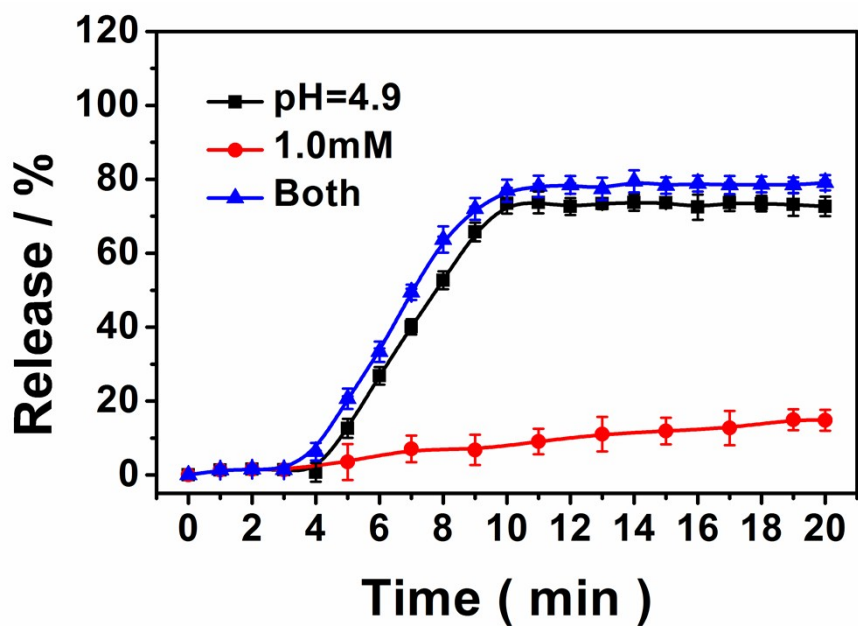


Figure S10 The cargo release of CTRA-MSN-NH₂@Rh 6G is approximately 70% at pH 4.9; the cargo release is approximately 14% when PMSF concentration is 1.0 mM; the cargo release is approaching 80% when both conditions are met (PMSF concentration is 1.0 mM, environmental pH is 4.9).

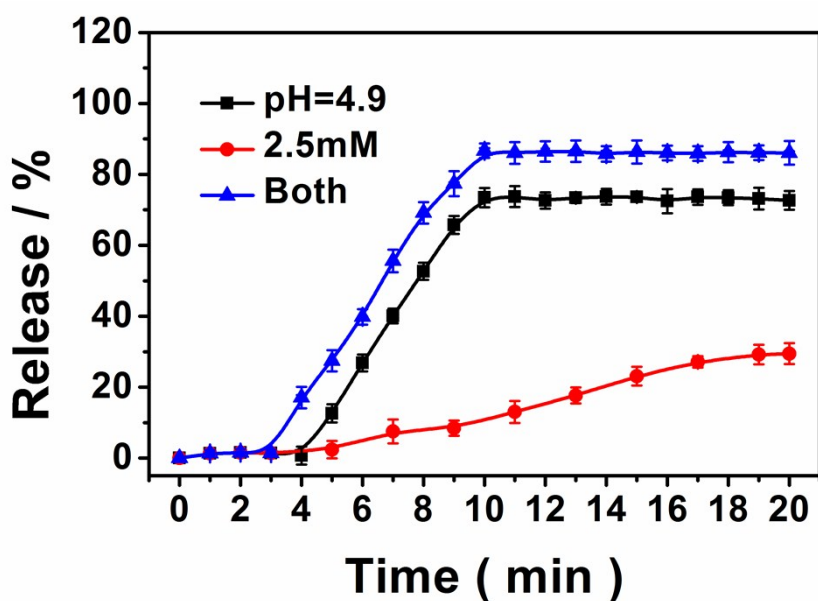


Figure S11 The cargo release of CTRA-MSN-NH₂@Rh 6G is approximately 70% at

pH 4.9; the cargo release is approximately 29% when PMSF concentration is 2.5 mM; the cargo release is approaching 90% when both conditions are met (PMSF concentration is 2.5 mM, environmental pH is 4.9).

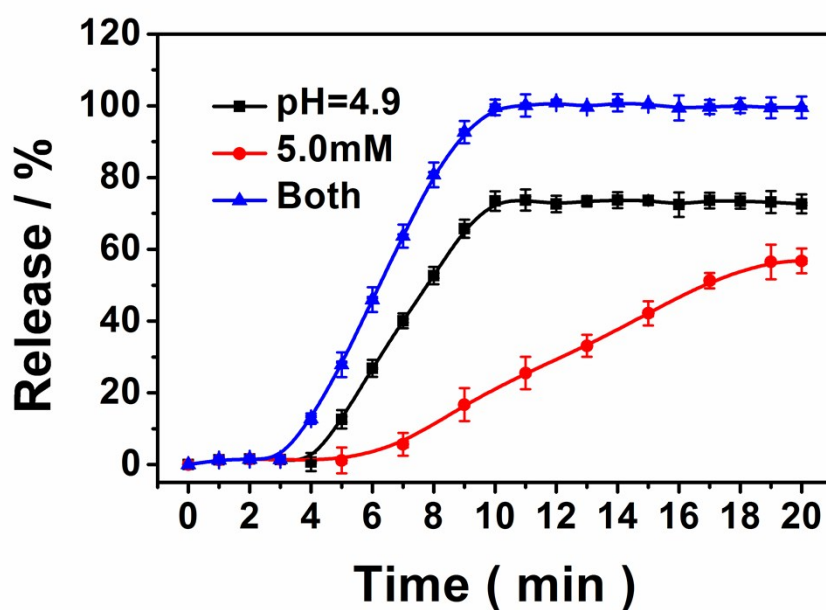


Figure S12 The cargo release of CTRA-MSN-NH₂@Rh 6G is approximately 70% at pH 4.9; the cargo release is approximately 60% when PMSF concentration is 5.0 mM; the cargo release is approaching 100% when both conditions are met (PMSF concentration is 5.0 mM, environmental pH is 4.9).