Supporting Information

# *Versatile functionalization of surface-tailorable polymer nanohydrogels for drug delivery systems*

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**Table S1 The characterization of poly(AA-*co*-DMA) nanohydrogels with different monomer ratios**

| Sample | Molar ratio (AA:DMA) | Monomers (mmol) | AIBN (wt) | BMOD (mmol) | $D_{TEM}$ (nm) | Homogeneity |
|---|---|---|---|---|---|---|
| a | 8:2 | 3 | 2% | 3% | 183±28 | Good |
| **b** | **7:3** | **3** | **2%** | **3%** | **205±12** | **Superior** |
| c | 6:4 | 3 | 2% | 3% | 335±23 | Good |
| d | 4:6 | 3 | 2% | 3% | 401±19 | Good |

**Table S2 Drug loading efficiencies and drug loading capacities of DOX and BTZ in poly(AA-*co*-DMA) nanohydrogels**

| Mass ratio (NG:DOX:BTZ) | DLE (DOX, %) | DLC (DOX, wt %) | DLE (BTZ, %) | DLC (BTZ, wt %) |
|---|---|---|---|---|
| 1：1：0.5 | 96.6 | 96.6 | 10.1 | 5.0 |
| 1：1：1 | 96.1 | 96.2 | 9.9 | 9.9 |
| **1：1：2** | **93.7** | **93.7** | **13.1** | **26.2** |
| 1：1：3 | 99.5 | 89.5 | 3.5 | 7.1 |

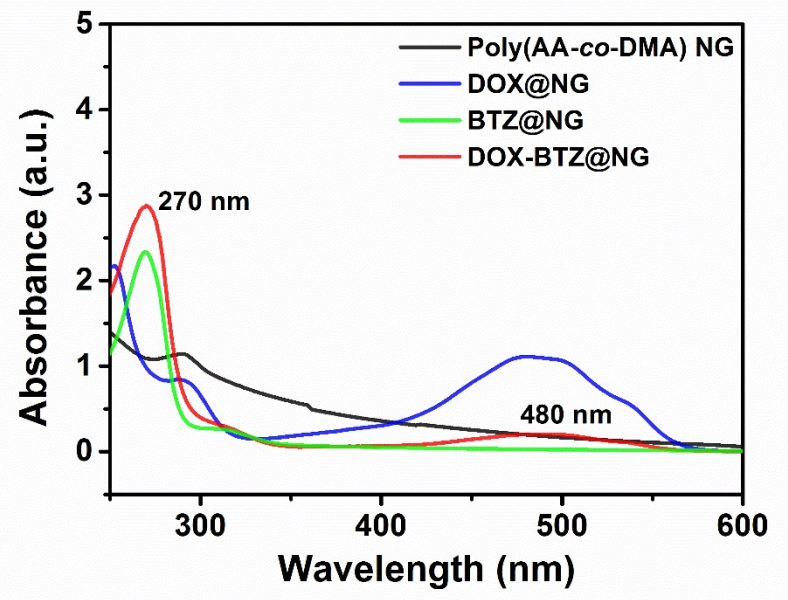


**Figure S1 The UV-vis spectra of poly(AA-*co*-DMA) NG, DOX@NG, BTZ@NG, and DOX-BTZ@NG.**

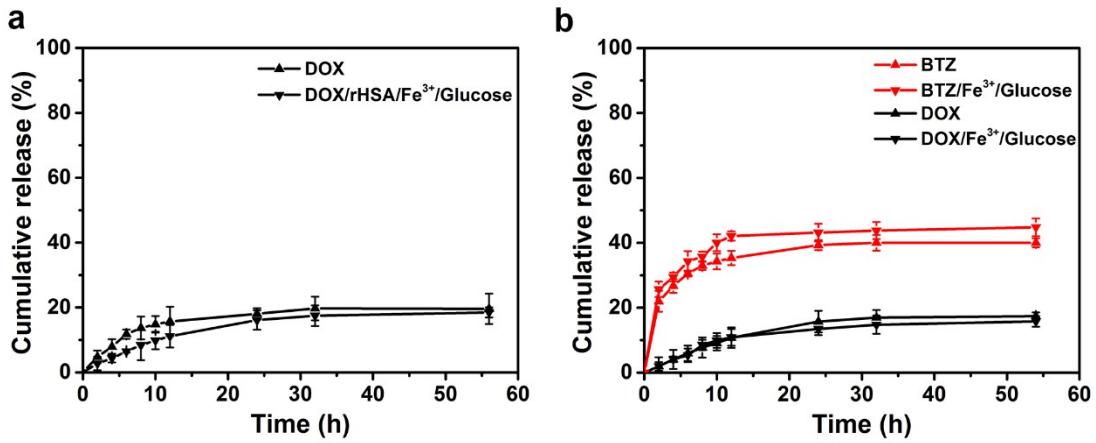


Figure S2 (a) DOX release profiles of DOX-$Fe_3O_4$@NP in PBS at pH 7.4 and PBS containing rHSA (30 μg/mL), $FeCl_3$ (1.43 μg/mL) and glucose (10 mM) at pH 7.4. (b) BTZ and DOX release profiles of DOX-BTZ@NG in PBS at pH 7.4 and PBS containing $FeCl_3$ (1.43 μg/mL) and glucose (10 mM) at pH 7.4.

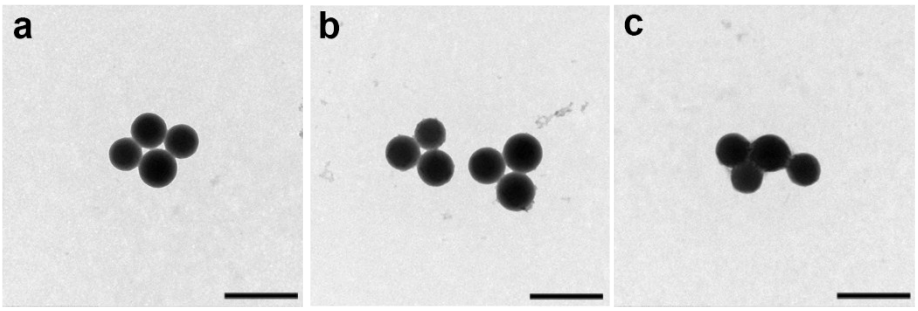


Figure S3 Biodegradation behaviors of the nanohydrogels observed by TEM. (a) Original poly(AA-*co*-DMA) NG. Degraded poly(AA-*co*-DMA) NG in PBS containing rHSA (30 μg/mL), $FeCl_3$ (1.43 μg/mL) and glucose (10 mM) at pH 7.4 for (b) 12 h and (c) 24 h. (Scale bar: 500 nm).