Electronic Supplementary Material (ESI) for New Journal of Chemistry.

Supporting Information

A facile solid cucurbit[8]uril-based porous supramolecular assembly: Utilisation in the adsorption of drugs and their controlled release

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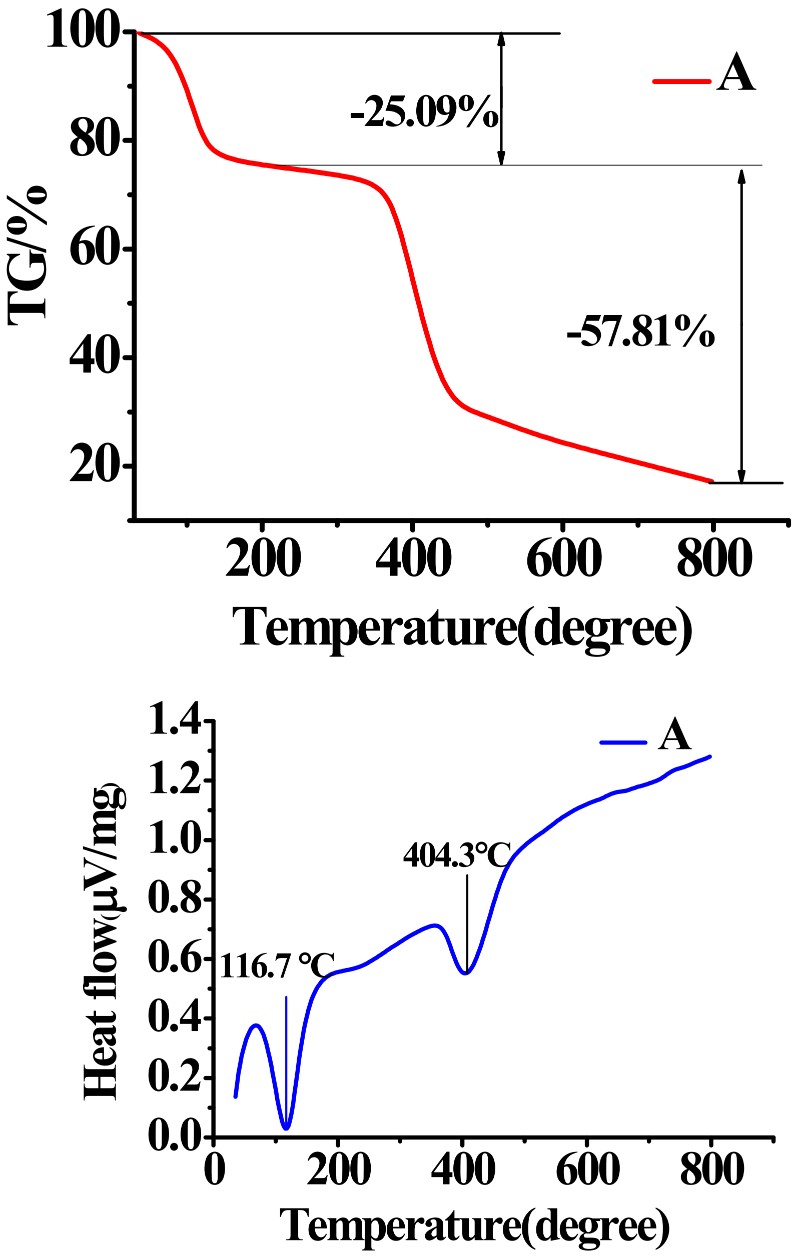

Figure S1 TG and DC curves of Q[8]-PSA in N_2.

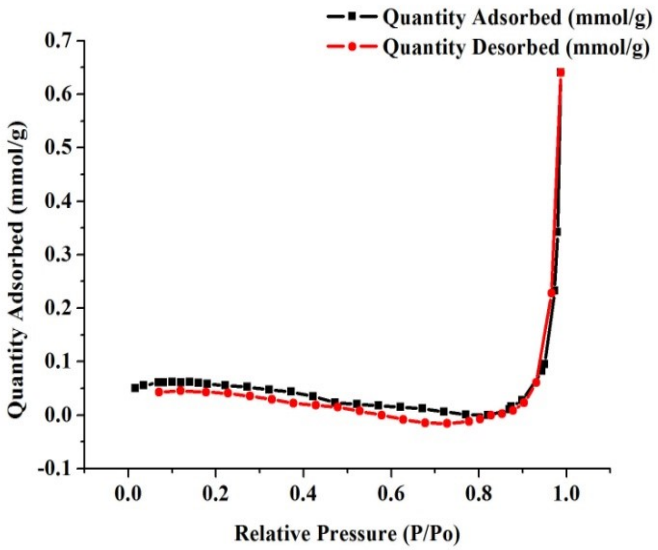

Figure S2 The sorption isotherms of N_2 at 77 K by a micrometrics ASAP2020HD88 automated sorption analyser. ■ symbol = adsorption and, ● symbol = desorption of Q[8]-PSA

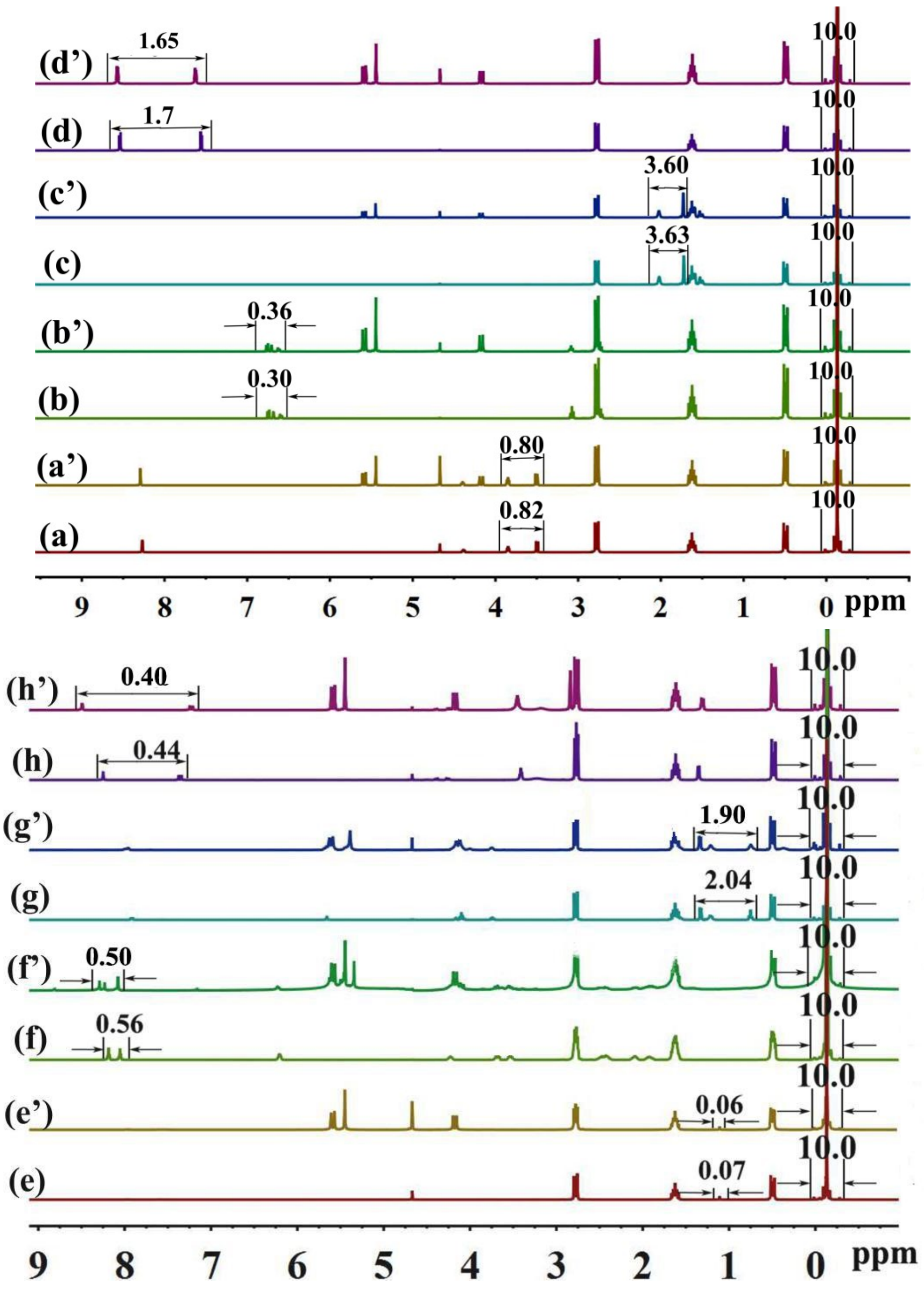

Figure S3 ^{1}H NMR spectra in deuterated water: (a) 0.5 mL 0.001 M ADV; (a') 0.5 mL 0.001 M ADV added 10 mg Q[8]-PSA; (b) 0.5 mL 0.001 M DA; (b') 0.5 mL 0.001 M DA added 10 mg Q[8]-PSA; (c) 0.5 mL 0.01 M Ama; (c') 0.5 mL 0.001 M Ama added 10 mg Q[8]-PSA; (d) 0.5 mL 0.001 M INH; (d') 0.5 mL 0.001 M INH added 10 mg Q[8]-PSA; (e) 0.5 mL 0.001 M TBNF; (e') 0.5 mL 0.001 M TBNF added 10 mg Q[8]-PSA; (f) 0.5 mL 0.001 M DDI; (f') 0.5 mL 0.01 M DDI added 10 mg Q[8]-PSA; (g) 0.5 mL 0.001 M CAP; (g') 0.5 mL 0.001 M CAP added 10 mg Q[8]-PSA; (h) 0.5 mL 0.001 M OFLX; (h') 0.5 mL 0.01 M OFLX added 10 mg Q[8]-PSA;

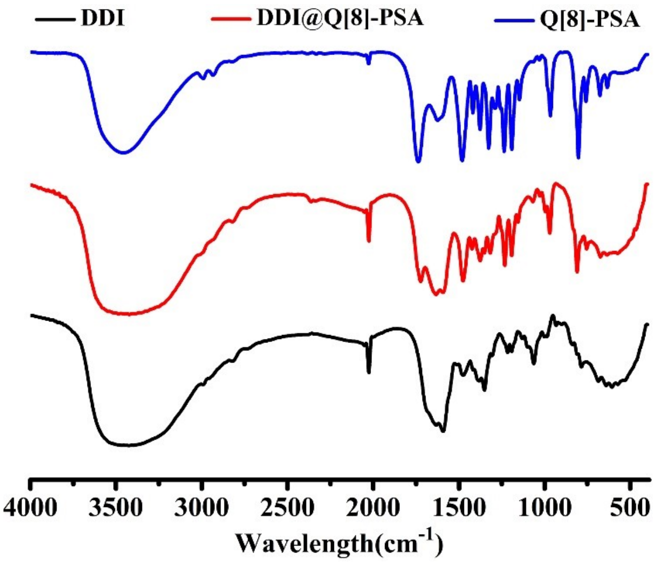

Figure S4 FT-IR spectra data of DDI, Q[8]-PSA @DDI and Q[8]-PSA.

Figure S4 shows the comparison of FT-IR spectra of DDI, Q[8]-PSA, and Q[8]-PSA loaded DDI, The adsorption of Q[8]-PSA shows a characteristic double peak of DDI at 1592.70cm^{-1} is the peak position of N=C on the purine. The FT-IR spectra of the adsorption of Q[8]-PSA appears widened or passivated observed near 3500 cm^{-1}. It can be shown that didanosine is adsorbed into the pores of Q[8]-PSA.

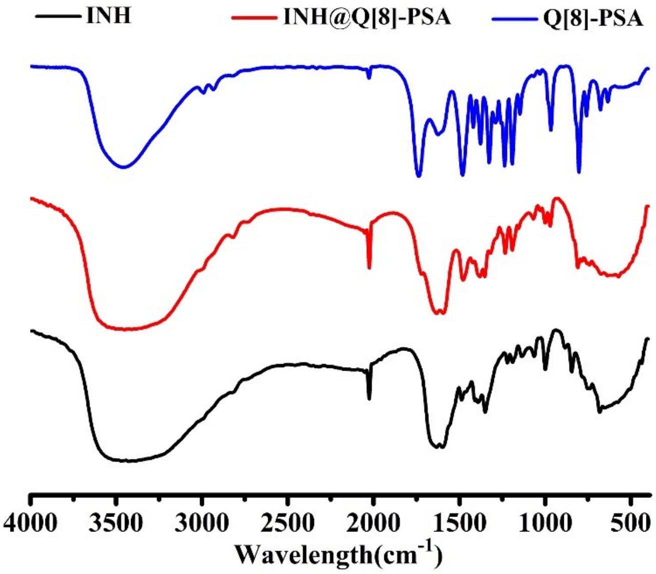

Figure S5 FT-IR spectra data of INH, Q[8]-PSA @INH and Q[8]-PSA.

Figure S5 shows the comparison of FT-IR spectra of INH, Q[8]-PSA, and Q[8]-PSA loaded INH, the strongest peak near 1632.69 cm^{-1} was amide peak. The peaks of three to four intermediate peaks in the 1580-1350 cm^{-1}zone are conjugated double bond peaks of pyridine. The peak of the amide is obviously in the Q[8]-PSA after adsorption. It can be shown that INH is adsorbed into the pores of Q[8]-PSA.

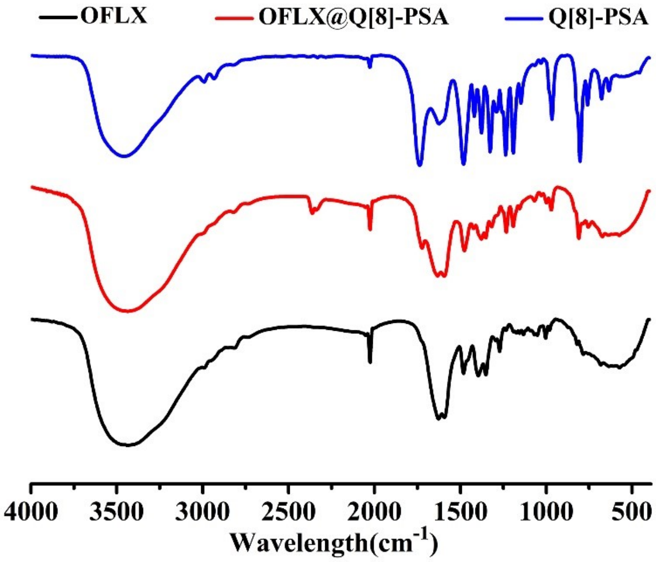

Figure S6 FT-IR spectra data of OFLX, Q[8]-PSA @OFLX and Q[8]-PSA.

Figure S6 shows the comparison of FT-IR spectra of OFLX, Q[8]-PSA, and Q[8]-PSA loaded OFLX, the strongest peak near 1640.08 cm^{-1} was the carbonyl double peak. The peak position of the carbonyl on the Q[8]-PSA is at 1750 cm^{-1}. The adsorption of Q[8]-PSA shows a characteristic double peak of evofloxacin tablets of the carbonyl at near 1650 cm^{-1}. It can be shown that OFLX is adsorbed into the pores of Q[8]-PSA.

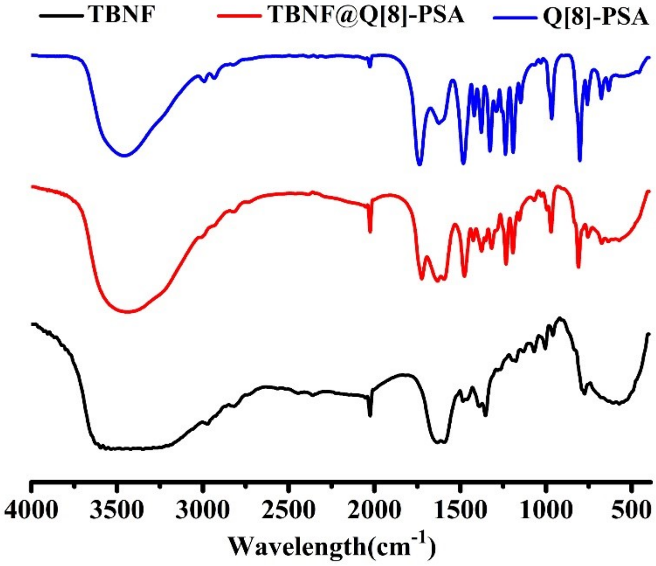

Figure S7 FT-IR spectra data of TBNF, Q[8]-PSA @TBNF and Q[8]-PSA

Figure S7 shows the comparison of FT-IR spectra of TBNF, Q[8]-PSA, and Q[8]-PSA loaded TBNF, the strongest peak near 1632.87cm^{-1}was the naphthalene and the carbon-carbon double bond. The strength of the carbon-carbon three-button telescopic vibration is too weak and does not show up. The peak of the a naphthalene ring and the carbon-carbon double bond are obviously in the Q[8]-PSA after adsorption. It can be shown that TBNF is adsorbed into the pores of Q[8]-PSA.

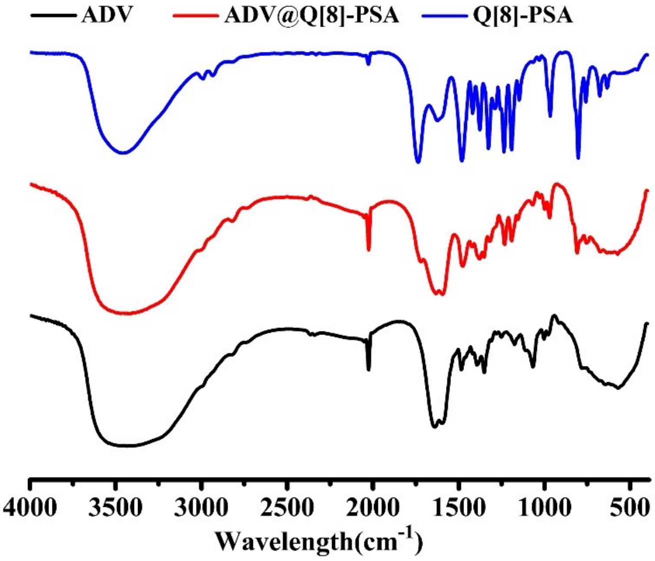

Figure S8 FT-IR spectra data of ADV, Q[8]-PSA @ADV and Q[8]-PSA.

Figure S8 shows the comparison of FT-IR spectra of ADV, Q[8]-PSA, and Q[8]-PSA loaded ADV, the strongest peak near 1615 cm^{-1}was the peak position of N=C on the purine. It can be shown that ADV is adsorbed into the pores of Q[8]-PSA.

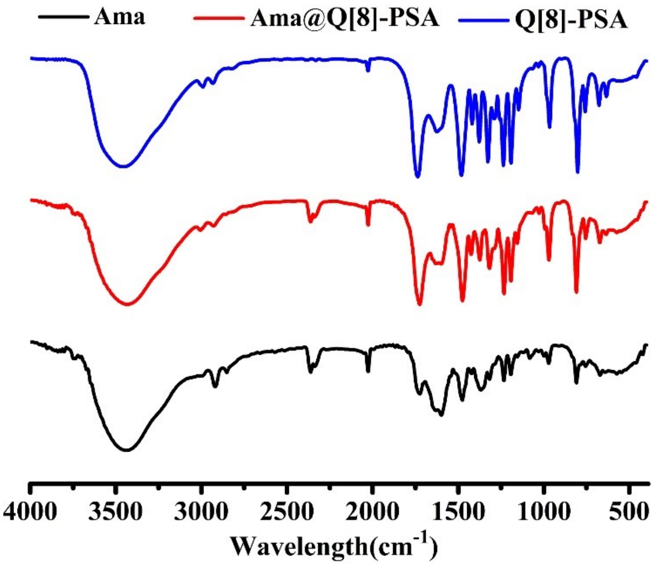

Figure S9 FT-IR spectra data of Ama, Q[8]-PSA @Ama and Q[8]-PSA.

Figure S9 shows the comparison of FT-IR spectra of DA, Q[8]-PSA, and Q[8]-PSA loaded DA, there is a stretching vibration of the amantadine near 2000 cm^{-1} It can be shown that DA is adsorbed into the pores of Q[8]-PSA.

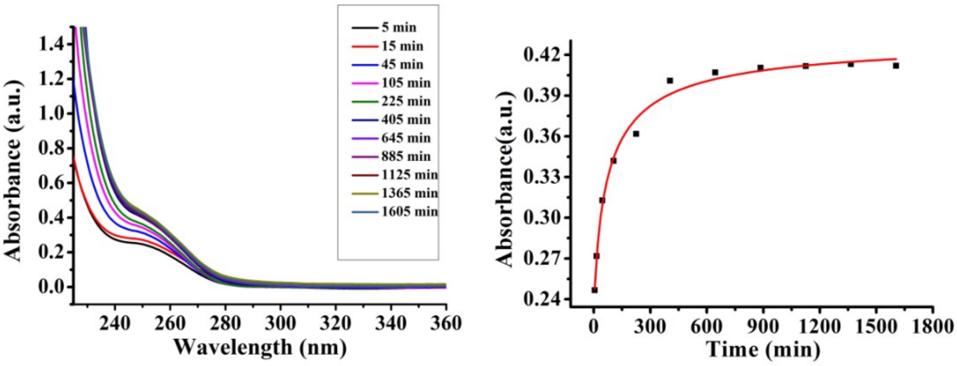

Figure S10 The UV absorption changes in the release for drug DDI from Q[8]-PSA at pH = 6.8.

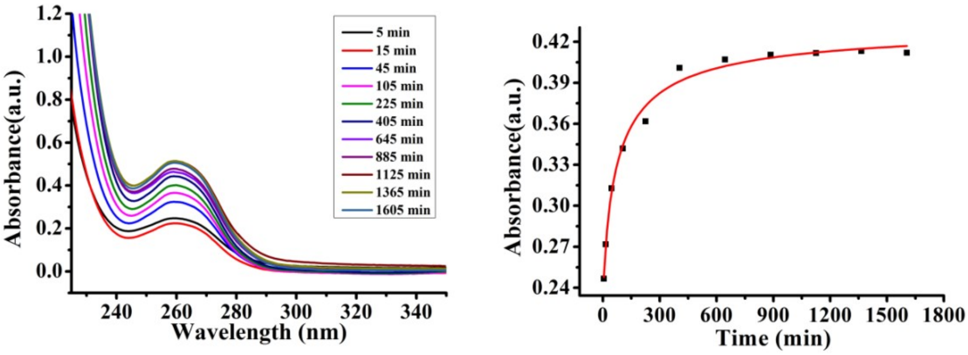

Figure S11 The UV absorption changes in the release for drug ADV from Q[8]-PSA at pH = 6.8.

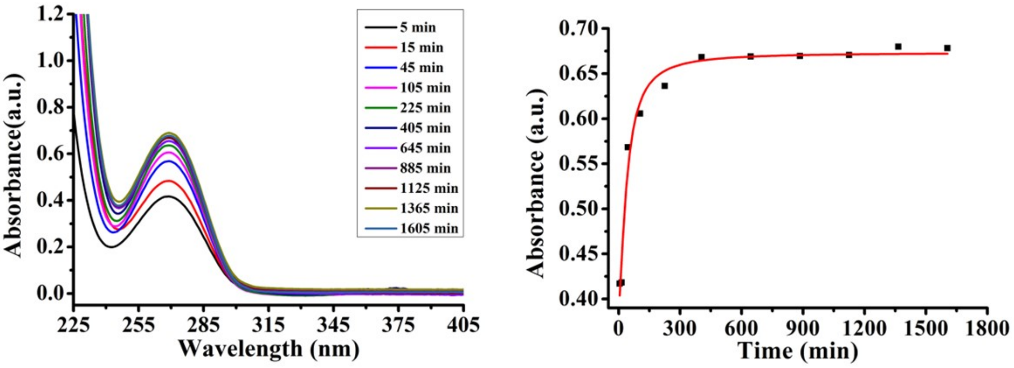

Figure S12 The UV absorption changes in the release for drug CPA from Q[8]-PSA at pH = 6.8.

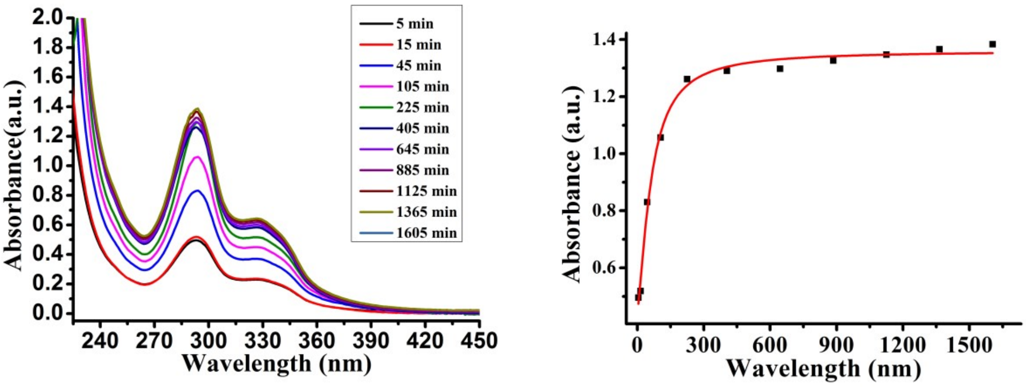

Figure S13 The UV absorption changes in the release for drug OFLX from Q[8]-PSA at pH = 6.8.

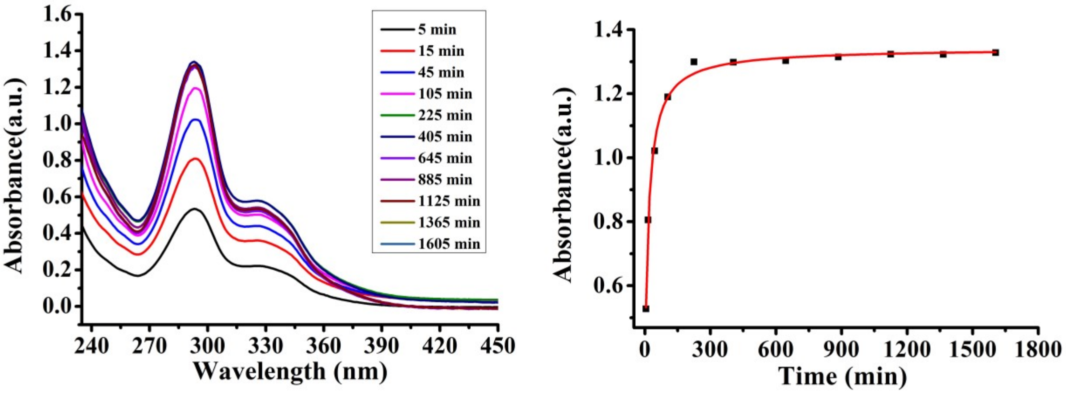

Figure S14 The UV absorption changes in the release for drug OFLX from Q[8]-PSA at pH=4.5.

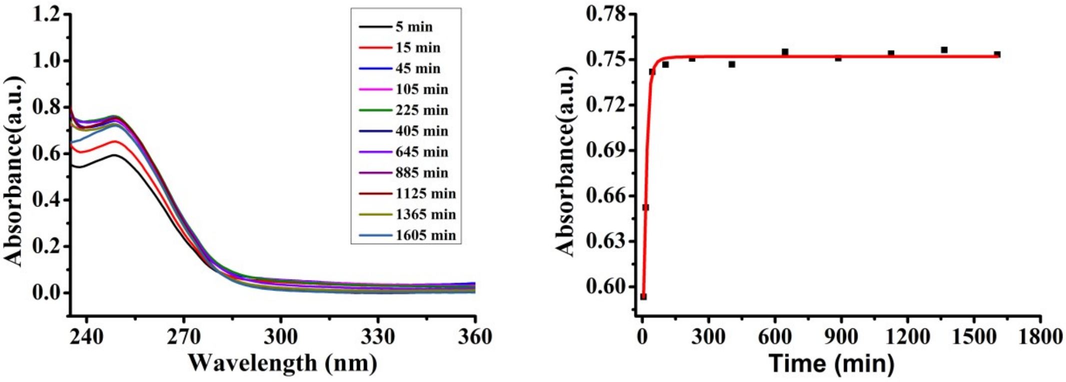

Figure S15 The UV absorption changes in the release for drug DDI from Q[8]-PSA at pH = 4.5.

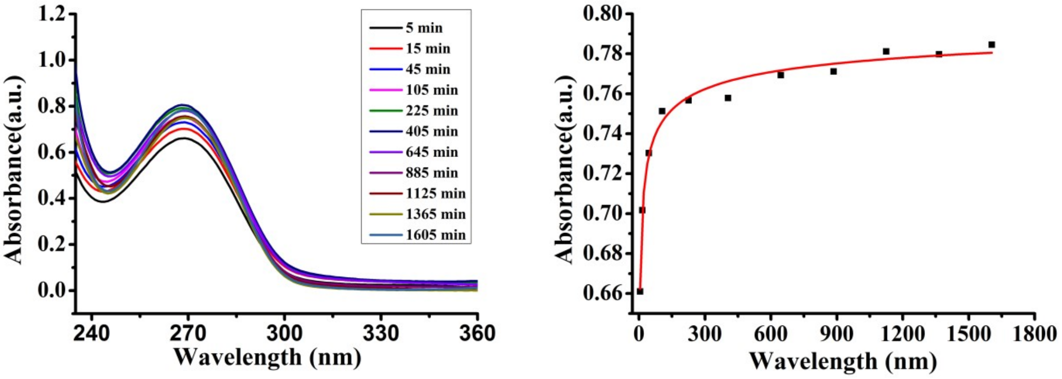

Figure S16 The UV absorption changes in the release for drug CAP from Q[8]-PSA at pH = 4.5.

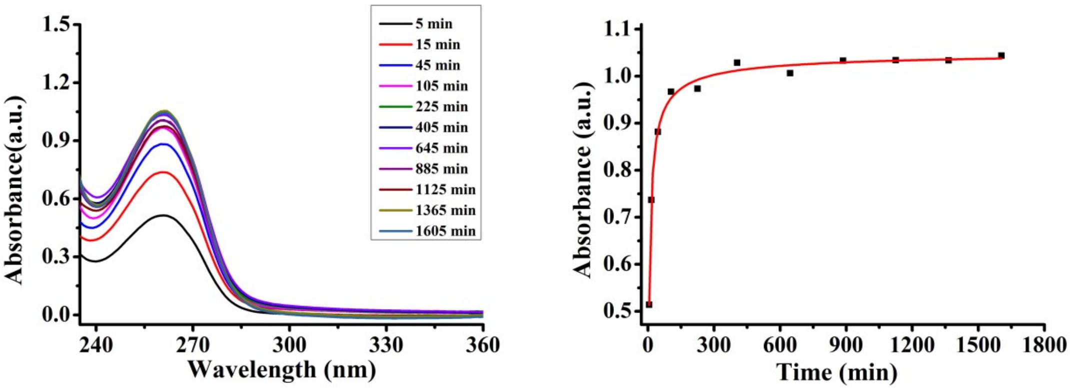

Figure S17 The UV absorption changes in the release for drug ADV from Q[8]-PSA at pH=4.5.