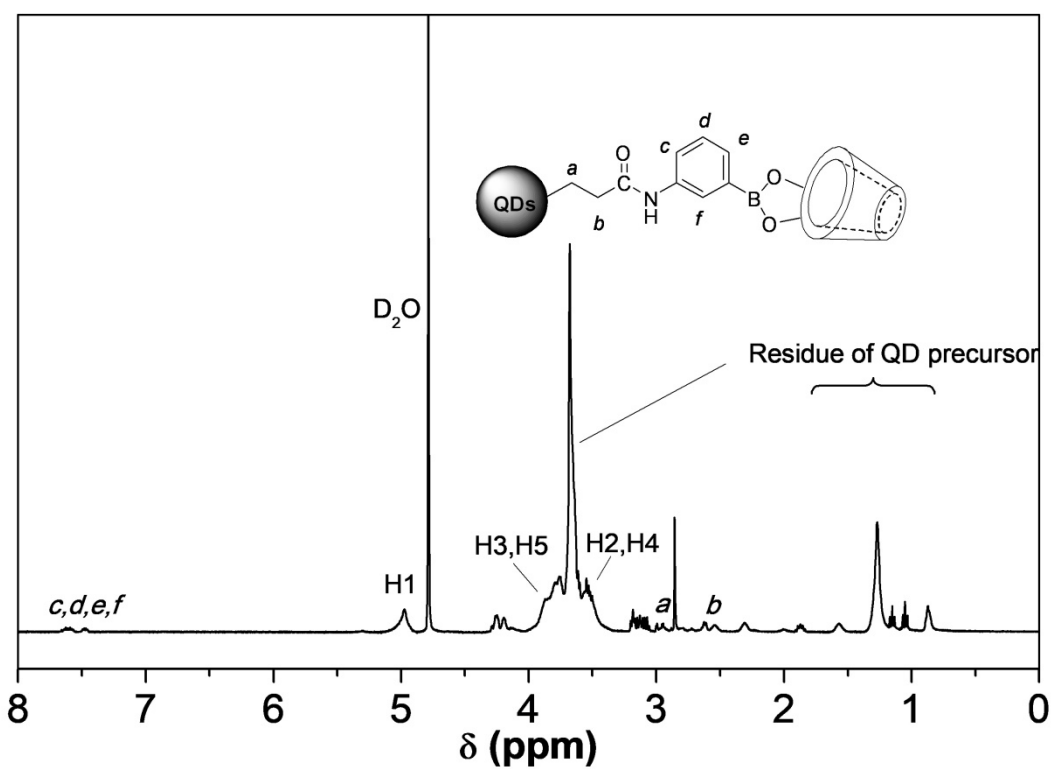


## Supplementary material

**Title :** Co-delivery of 5-fluorouracil and miRNA-34a mimics by host-guest self-assembly nanocarriers for efficacious targeted therapy in colorectal cancer patient-derived tumor xenografts



**Figure S1.** <sup>1</sup>H NMR spectrum of CD-QDs in D<sub>2</sub>O.

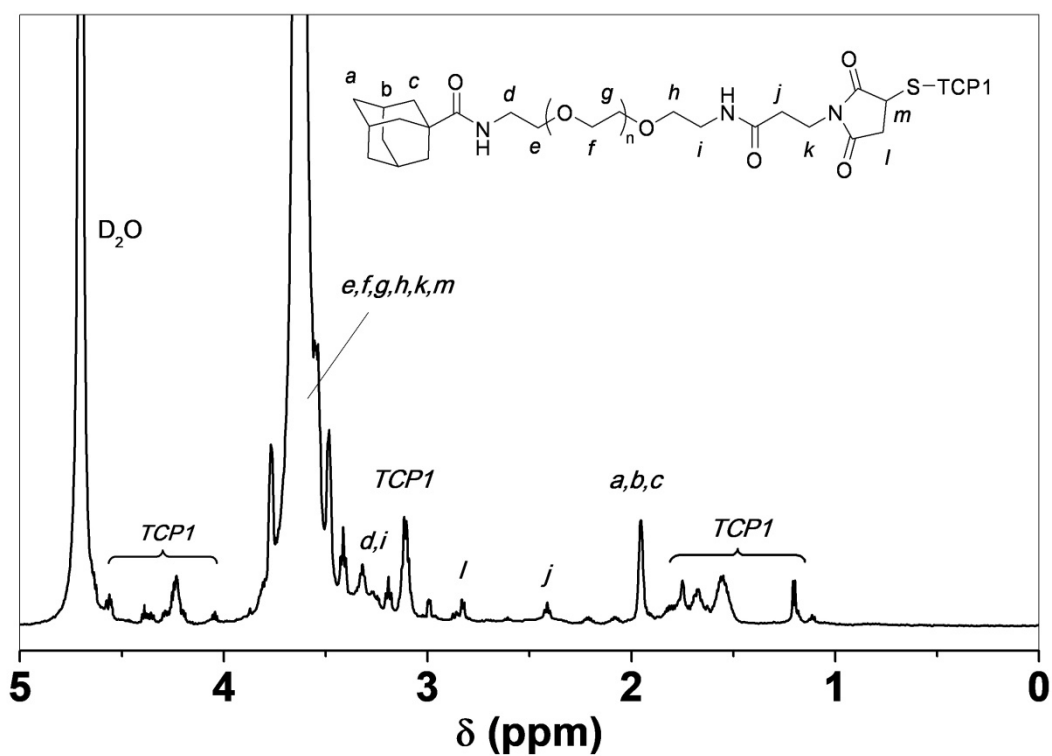


Figure S2. <sup>1</sup>H NMR spectrum of ADA-PEG-TCP1 in D<sub>2</sub>O.

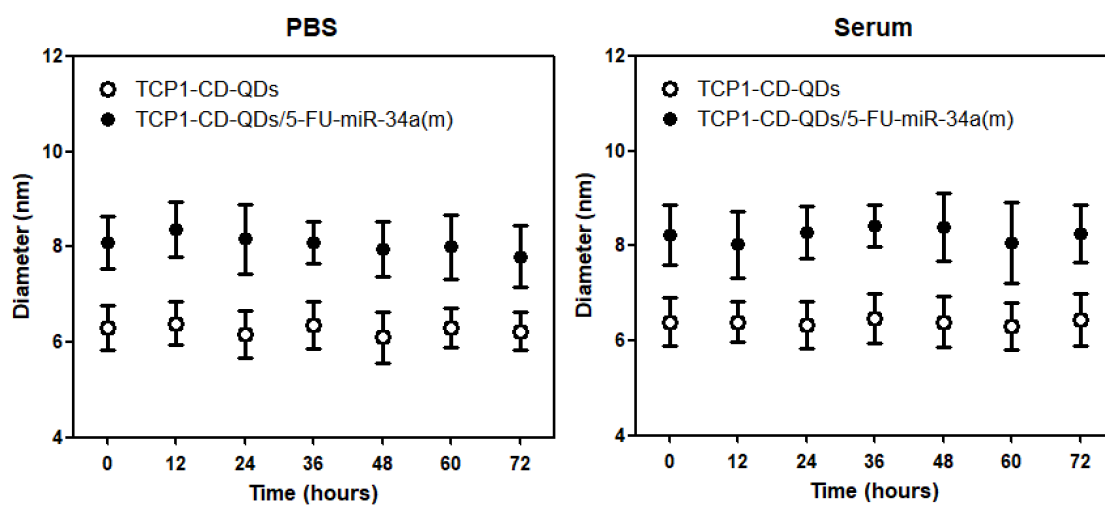
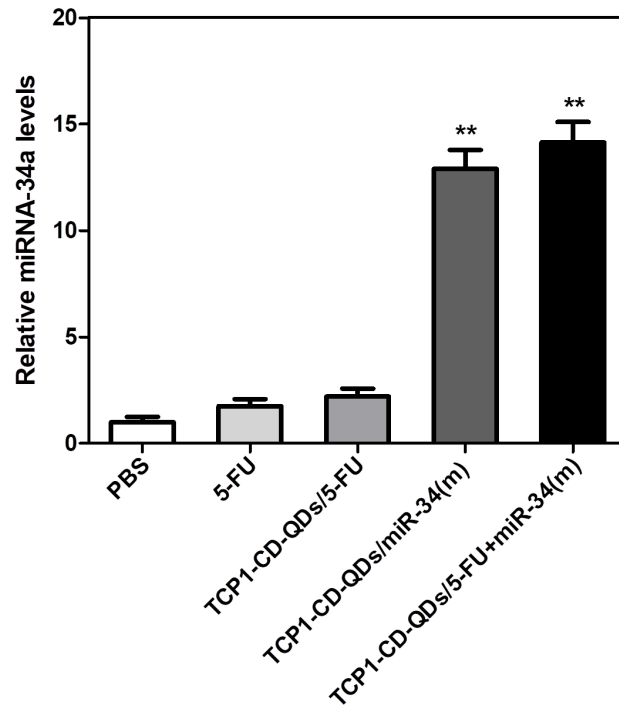
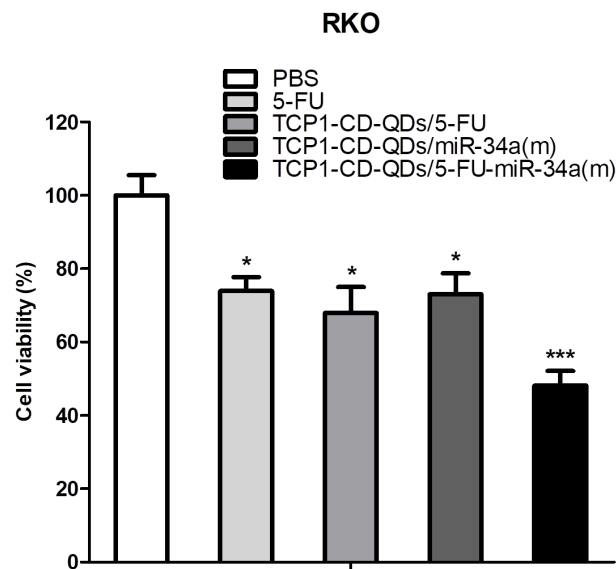


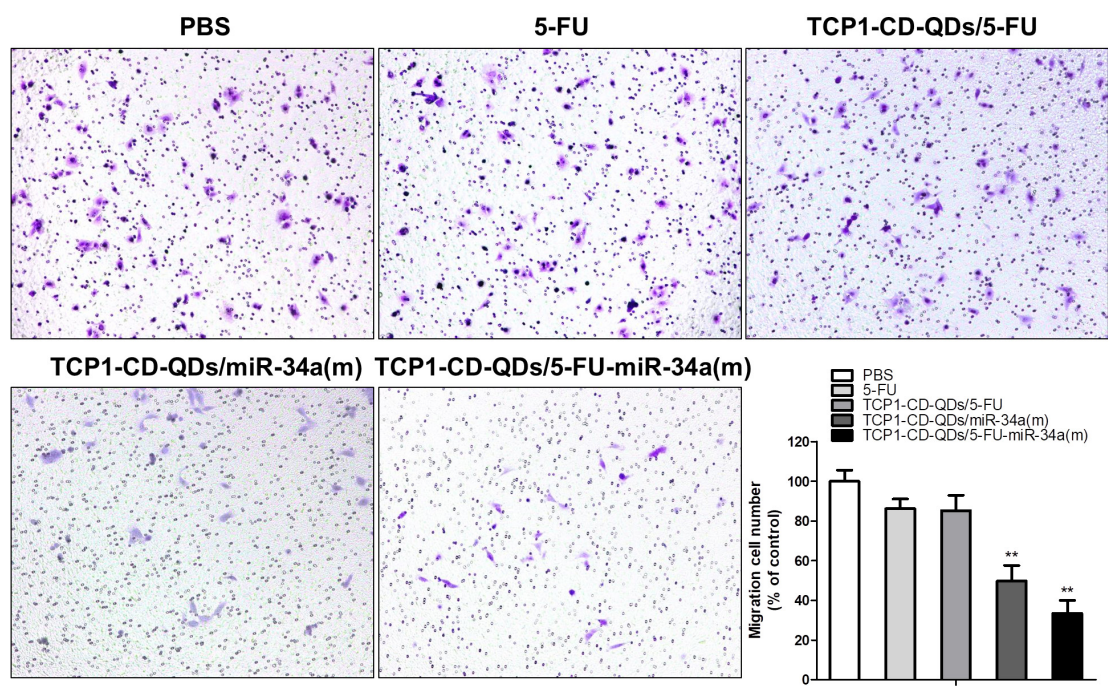
Figure S3. Stability of TCP1-CD-QDs and TCP1-CD-QDs/5-FU-miR-34a(m) in PBS and serum for 72 h.



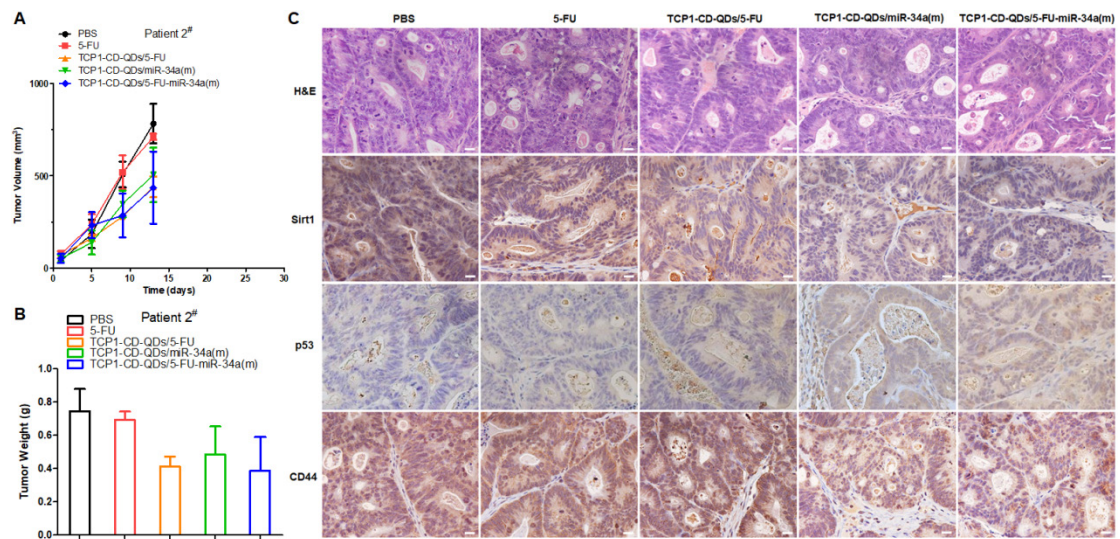
**Figure S4.** miR-34a expression in CRCs after delivery of miR-34a(m) by TCP1-CD-QD nanocarriers was measured by RT-PCR, and U6 small nuclear RNA was used as an internal control. The data are reported as the mean  $\pm$  SD of the experiments (n=3).



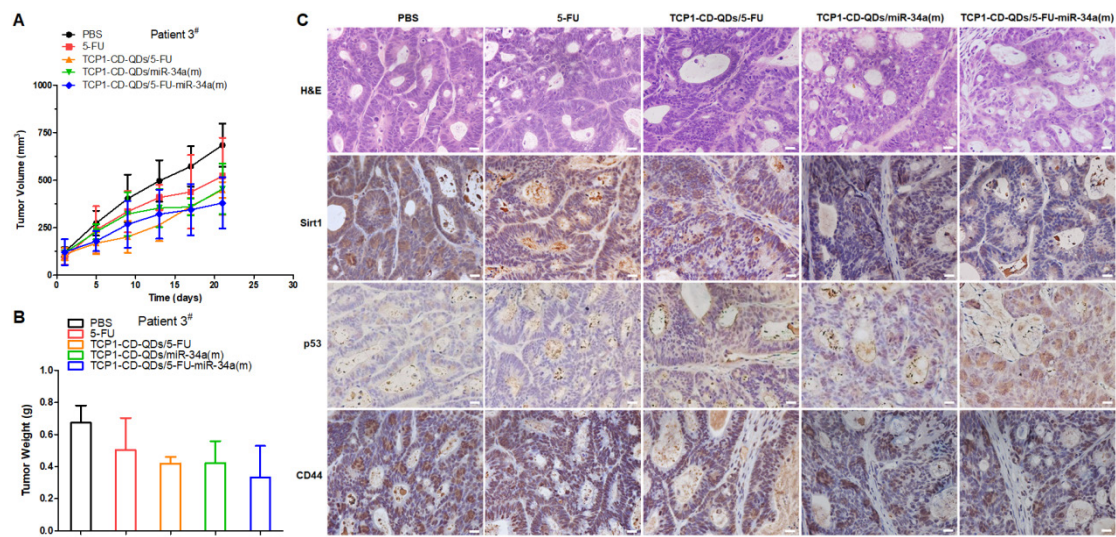
**Figure S6.** Cell viability of cells treated with PBS, free 5-FU, TCP1- $\beta$ -CD-QDs/5-FU, TCP1- $\beta$ -CD-QDs/miR-34(m) and TCP1- $\beta$ -CD-QDs/5-FU+miR-34(m) for RKO cell line. The concentration of 5-FU at 2  $\mu$ M and miR-34a(m) at 25 nM in all treatments for 48 h was measured.



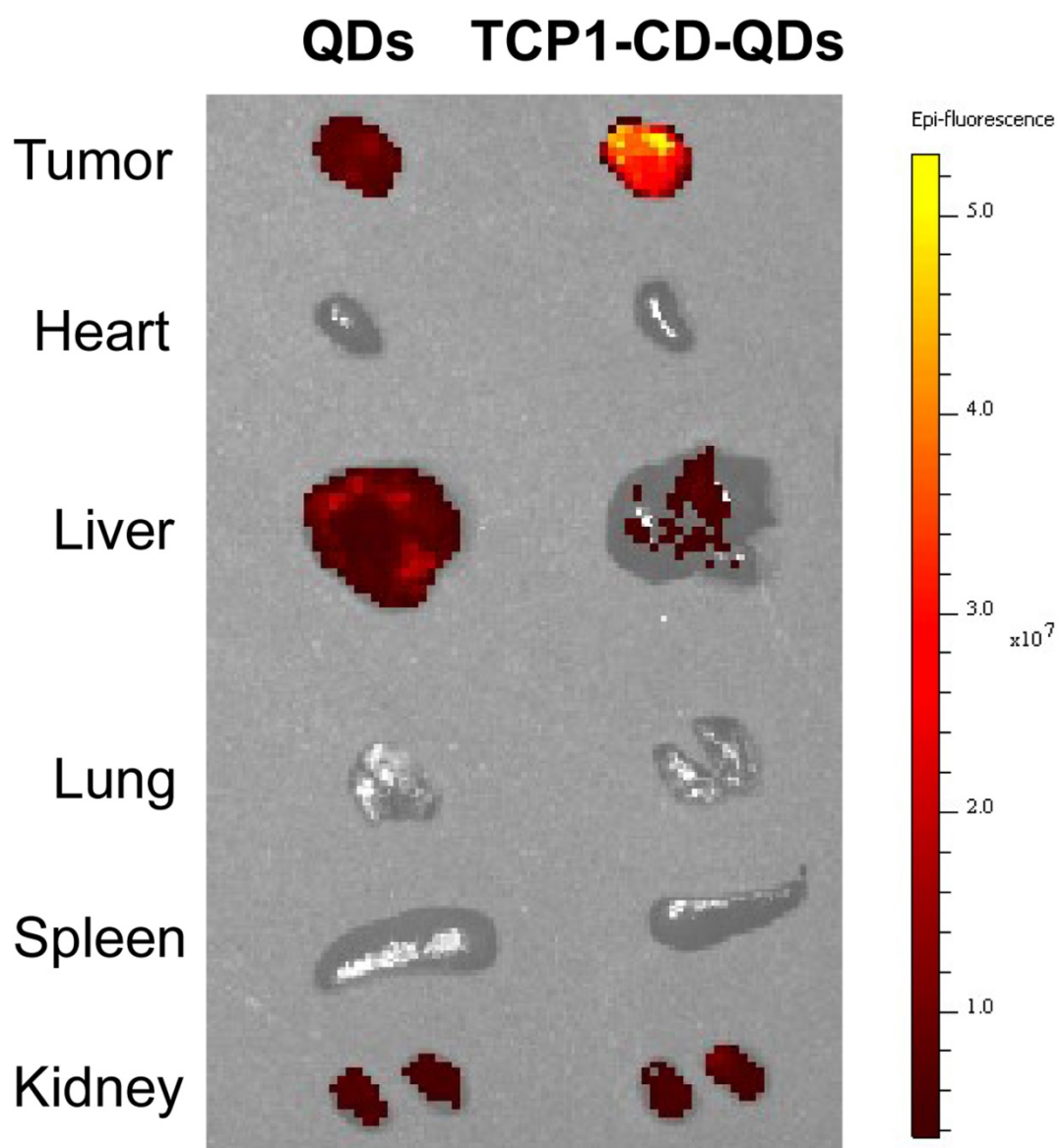
**Figure S8.** Transwell assay of treatments with PBS, free 5-FU, TCP1-CD-QDs/5-FU, TCP1-CD-QDs/miR-34(m) and TCP1-CD-QDs/5-FU+miR-34(m) for RKO cell line. The concentration of 5-FU at 2  $\mu$ M miR-34a(m) at 25 nM in all treatments for 24 h.



**Figure S9.** Suppression of subcutaneous tumor growth by TCP1-CD-QDs/5-FU+miR-34(m) in PDX models. The tumor models were treated with PBS, free 5-FU, TCP1-CD-QDs/5-FU, TCP1-CD-QDs/miR-34a(m) and TCP1-CD-QDs/5-FU-miR-34a(m) group, respectively. (A) The tumor growth in PDX model of treatments in 5 groups. (B) The tumor weight in PDX model of treatments in 5 groups. (C) Representative sirt1, p53 and CD44 immunohistochemistry images of treatments in 5 groups. Bar: 20  $\mu$ m.



**Figure S10.** Suppression of subcutaneous tumor growth by TCP1-CD-QDs/5-FU+miR-34(m) in PDX models. The tumor models were treated with PBS, free 5-FU, TCP1-CD-QDs/5-FU, TCP1-CD-QDs/miR-34a(m) and TCP1-CD-QDs/5-FU-miR-34a(m) group, respectively. (A) The tumor growth in PDX model of treatments in 5 groups. (B) The tumor weight in PDX model of treatments in 5 groups. (C) Representative sirt1, p53 and CD44 immunohistochemistry images of treatments in 5 groups. Bar: 20  $\mu$ m.



**Figure S11.** Biodistribution of QDs and TCP1-CD-QDs in tumor-bearing mice. The fluorescence imaging of tumors and major organs (heart, liver, lung, spleen, kidney) at 24 h after mice had been treated with QDs and TCP1-CD-QDs.

**Table S1.** DLS and Zeta potential of TCP1-CD-QDs and TCP1-CD-QDs/5-FU-miR-34a(m)

<b>Nanocomplexes</b>	<b>TCP1-CD-QDs</b>	<b>TCP1-CD-QDs/5-FU-miR-34a(m)</b>
DLS (nm)	$6.3 \pm 0.8$	$8.1 \pm 1.0$
Zeta potential (mV)	$18.3 \pm 0.8$	$10.5 \pm 0.9$