

## Electronic Supplementary Information

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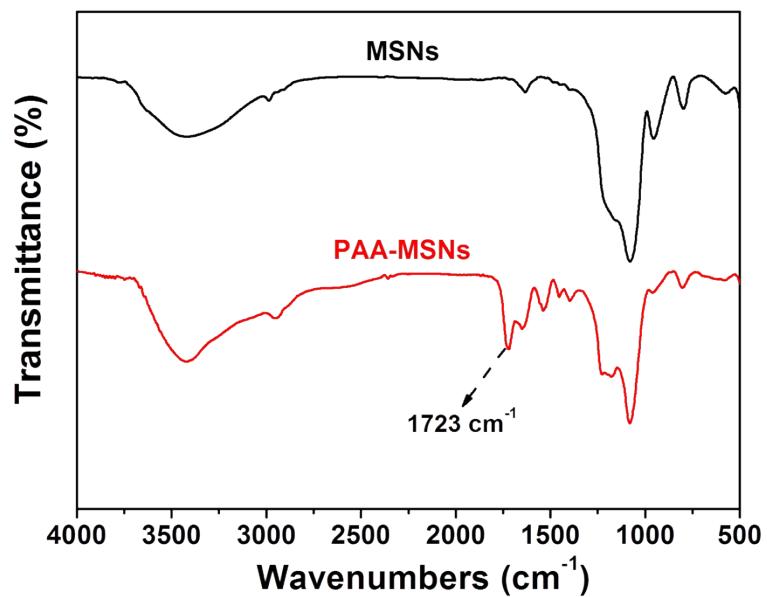
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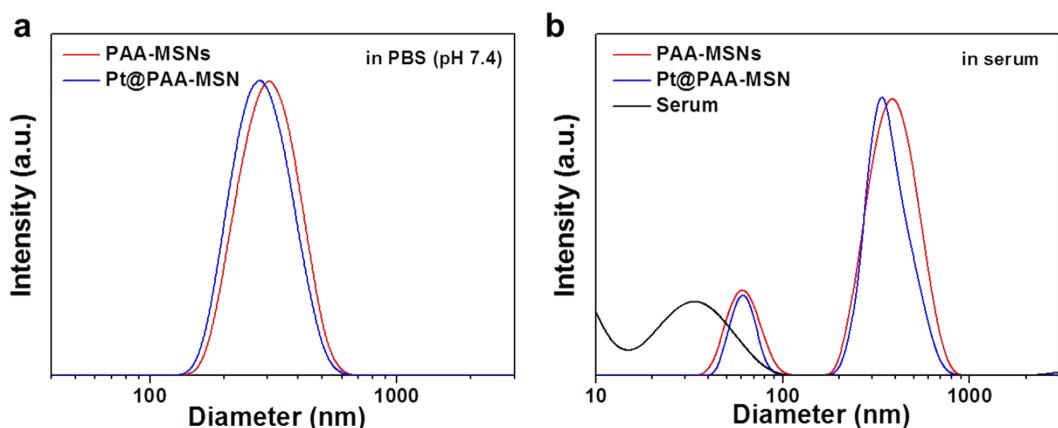
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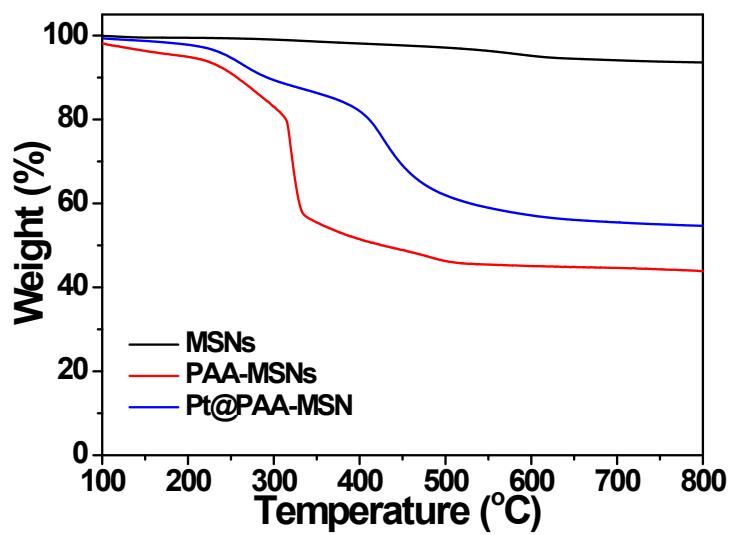
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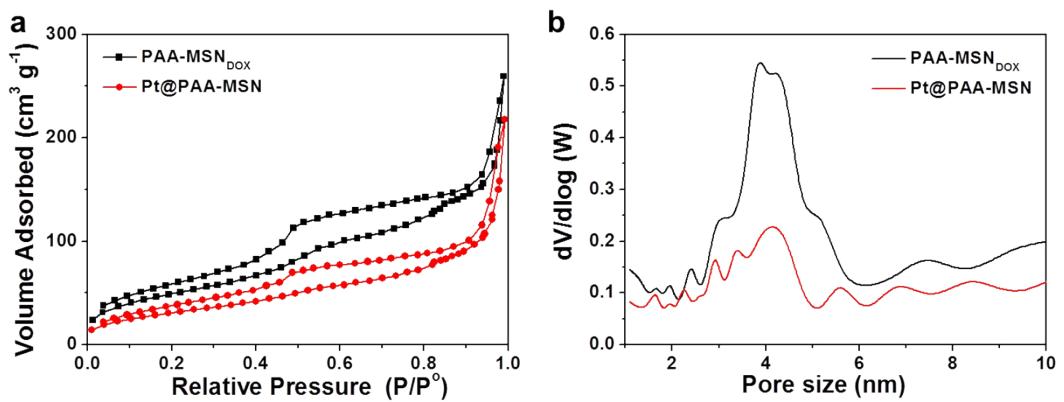
**Fig. S1.** FT-IR spectra of MSNs and PAA-MSNs.



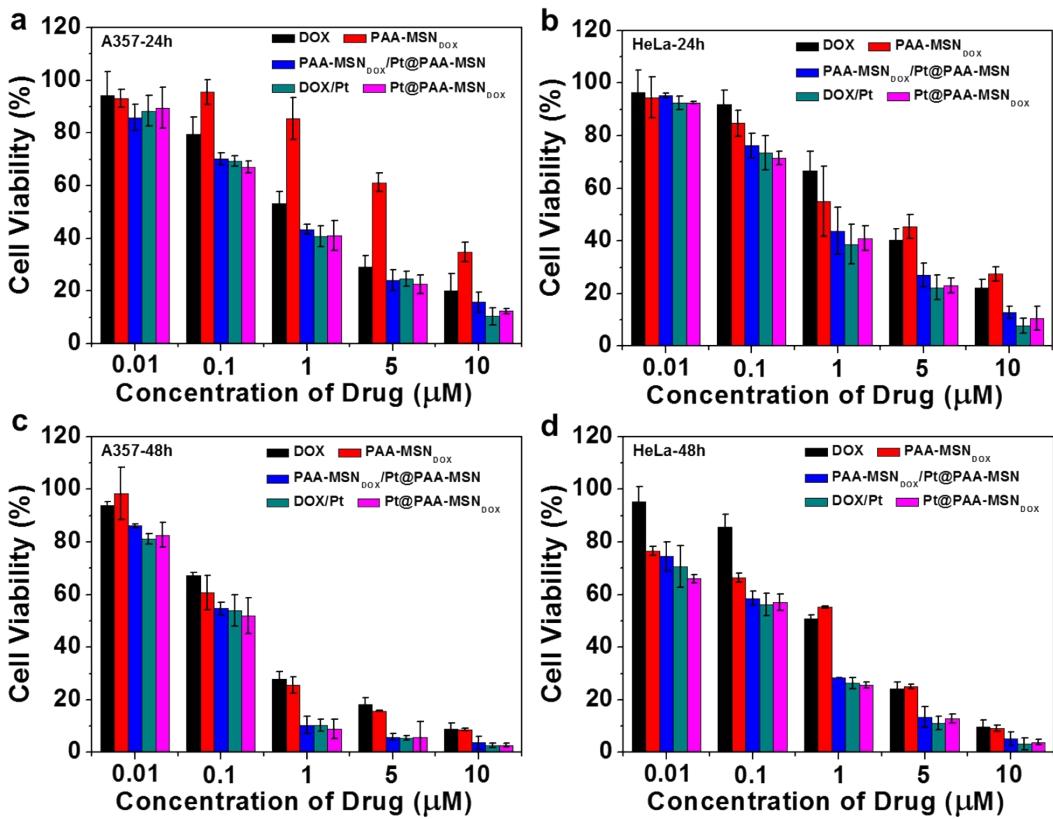
**Fig. S2.** DLS curves of PAA-MSNs and Pt@PAA-MSN in (a) PBS and (b) serum.



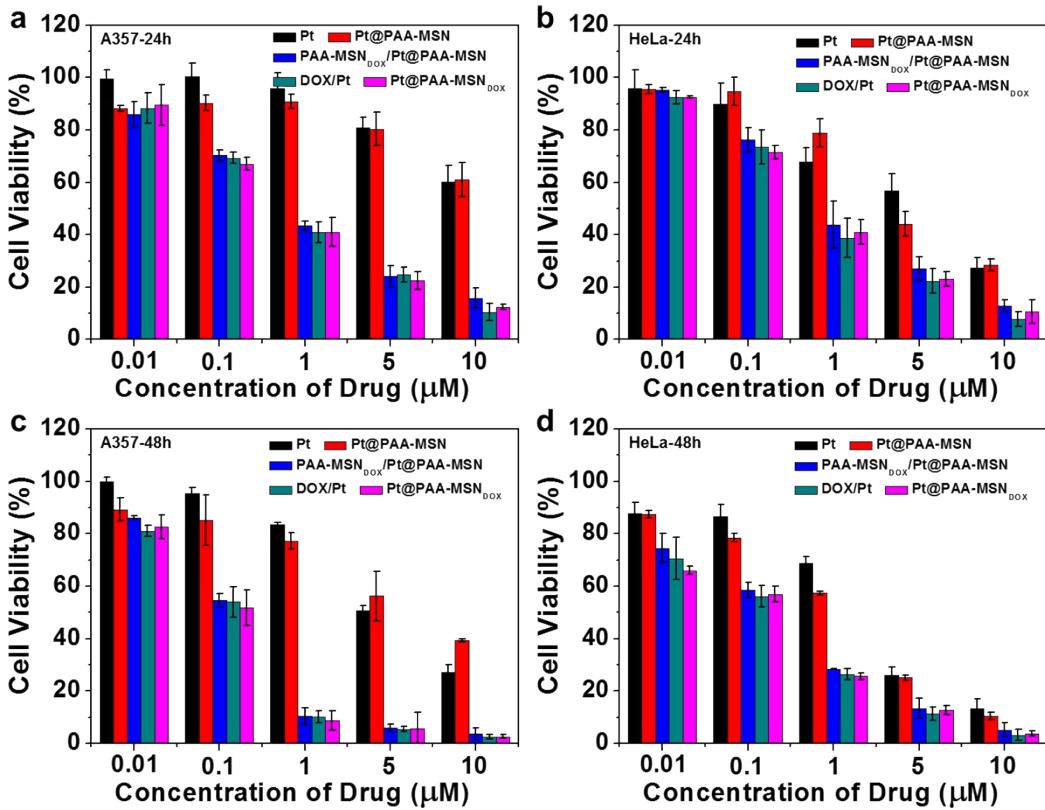
**Fig. S3.** TGA curves of MSNs, PAA-MSNs and Pt@PAA-MSN.



**Fig. S4.** N<sub>2</sub> adsorption-desorption isotherms (a) and pore-size distribution (b) of PAA-MSN<sub>DOX</sub> and Pt@PAA-MSN.



**Fig. S5.** In vitro cell viability of A357 and HeLa cells against DOX, PAA-MSN<sub>DOX</sub>, PAA-MSN<sub>DOX</sub>/Pt@PAA-MSN mixture, DOX/Pt mixture and Pt@PAA-MSN<sub>DOX</sub> at different concentrations and incubation times: (a) A357 cells incubated for 24 h; (b) HeLa cells incubated for 24 h; (c) A357 cells incubated for 48 h; (d) HeLa cells incubated for 48 h.



**Fig. S6.** In vitro cell viability of A357 and HeLa cells against Pt, Pt@PAA-MSN, PAA-MSN<sub>DOX</sub>/Pt@PAA-MSN mixture, DOX/Pt mixture and Pt@PAA-MSN<sub>DOX</sub> at different concentrations and incubation times: (a) A357 cells incubated for 24 h; (b) HeLa cells incubated for 24 h; (c) A357 cells incubated for 48 h; (d) HeLa cells incubated for 48 h.

**Table S1.** The statistics analysis based on the cell viabilities of Pt@PAA-MSN<sub>DOX</sub> compared with different control samples corresponding to A357 cell at incubation time of 24h.

P Drug concentration ( $\mu$ M)	Sample	Free DOX	Free Pt	PAA-MSN <sub>DOX</sub>	Pt@ PAA-MSN
0.01		0.545	0.113	0.495	0.777
0.1		<0.05	<0.01	<0.01	<0.01
1		<0.05	<0.01	<0.01	<0.01
5		0.108	<0.01	<0.01	<0.01
10		0.113	<0.01	<0.01	<0.01

**Table S2.** The statistics analysis based on the cell viabilities of Pt@PAA-MSN<sub>DOX</sub> compared with different control samples corresponding to A357 cell at incubation time of 48h.

P Drug concentration ( $\mu$ M)	Sample	Free DOX	Free Pt	PAA-MSN <sub>DOX</sub>	Pt@ PAA-MSN
0.01		<0.05	<0.01	0.065	0.145
0.1		<0.05	<0.01	0.180	<0.01
1		<0.01	<0.01	<0.01	<0.01
5		<0.05	<0.01	<0.05	<0.01
10		<0.01	<0.01	<0.01	<0.01

**Table S3.** The statistics analysis based on the cell viabilities of Pt@PAA-MSN<sub>DOX</sub> compared with different control samples corresponding to HeLa cell at incubation time of 24h.

P Drug concentration ( $\mu$ M)	Sample	Free DOX	Free Pt	PAA-MSN <sub>DOX</sub>	Pt@ PAA-MSN
0.01		0.484	0.489	0.688	0.036
0.1		<0.01	<0.05	0.150	<0.01
1		<0.01	<0.01	<0.05	<0.01
5		<0.01	<0.01	<0.01	<0.01
10		<0.05	<0.01	<0.01	<0.01

**Table S4.** The statistics analysis based on the cell viabilities of Pt@PAA-MSN<sub>DOX</sub> compared with different control samples corresponding to HeLa cell at incubation time of 48h.

P Drug concentration ( $\mu$ M)	Sample	Free DOX	Free Pt	PAA-MSN <sub>DOX</sub>	Pt@ PAA-MSN
0.01		<0.01	<0.01	<0.01	<0.01
0.1		<0.01	<0.01	<0.01	<0.01
1		<0.01	<0.01	<0.01	<0.01
5		<0.01	<0.01	<0.01	<0.01
10		<0.05	<0.05	<0.01	<0.01

**Table S5.** IC<sub>50</sub> values of the test samples corresponding to A357 and HeLa cells at different incubation time.

Cells and Incubation Time \ IC <sub>50</sub> (μM)	Samples					
		Free DOX	Free Pt	PAA- MSN <sub>DOX</sub>	Pt@PAA- MSN	Pt@PAA- MSN <sub>DOX</sub>
A357    24 h		1.48±0.48	>10*	7.13±0.68	>10*	0.66±0.09 <sup>a</sup>
A357    48 h		0.48±0.04	5.11±0.39	0.36±0.13	6.82±0.63	0.13±0.05 <sup>b</sup>
HeLa    24 h		3.49±0.41	6.16±0.59	3.04±0.69	4.20±0.39	0.73±0.12 <sup>c</sup>
HeLa    48 h		1.14±0.07	2.76±0.20	1.68±0.03	1.91±0.08	0.30±0.07 <sup>c</sup>

\*The IC<sub>50</sub> values were beyond the scope of tests.

<sup>a</sup>  $P < 0.05$ , vs Free DOX.  $P < 0.01$ , vs Free Pt, PAA-MSN<sub>DOX</sub> and Pt@PAA-MSN.

<sup>b</sup>  $P < 0.05$ , vs PAA-MSN<sub>DOX</sub>.  $P < 0.01$ , vs Free DOX, Free Pt and Pt@PAA-MSN.

<sup>c</sup>  $P < 0.01$ , vs Free DOX, Free Pt, PAA-MSN<sub>DOX</sub> and Pt@PAA-MSN.