Synergistic chemotherapy for breast cancer and breast cancer brain metastases via paclitaxel-loaded oleanolic acid nanoparticles

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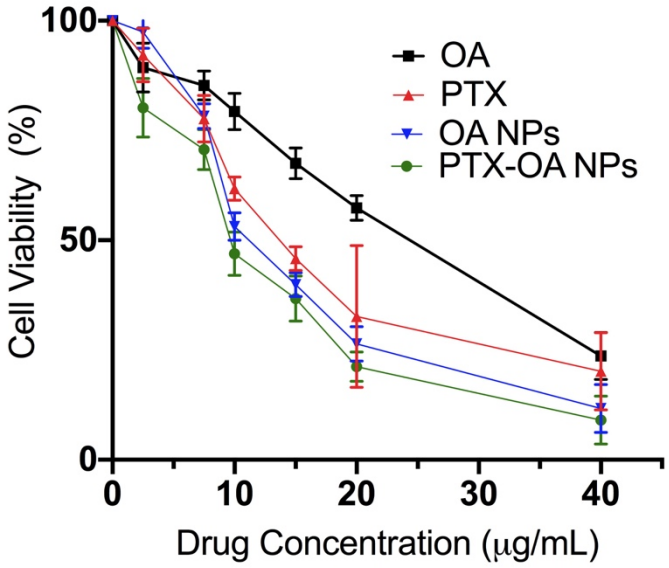

Figure S1. Cell viability of MCF-7 cells after treatments with free OA (black line), free PTX (red line), blank OA NPs (blue line), and PTX-OA NPs (green line), respectively, in different drug concentrations (each group included 3 wells).

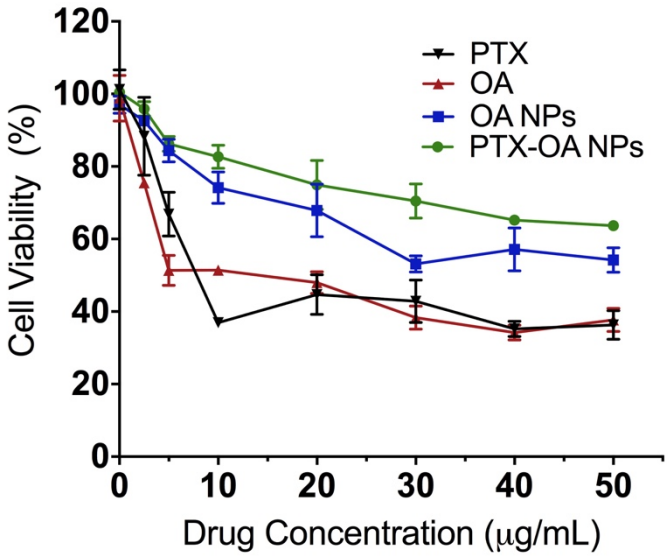

Figure S2. Cell viability of NHA cells after treatments with free PTX (black line), OA (red line), blank OA NPs (blue line), and PTX-OA NPs (green line), respectively, in different drug concentrations (each group included 3 wells).

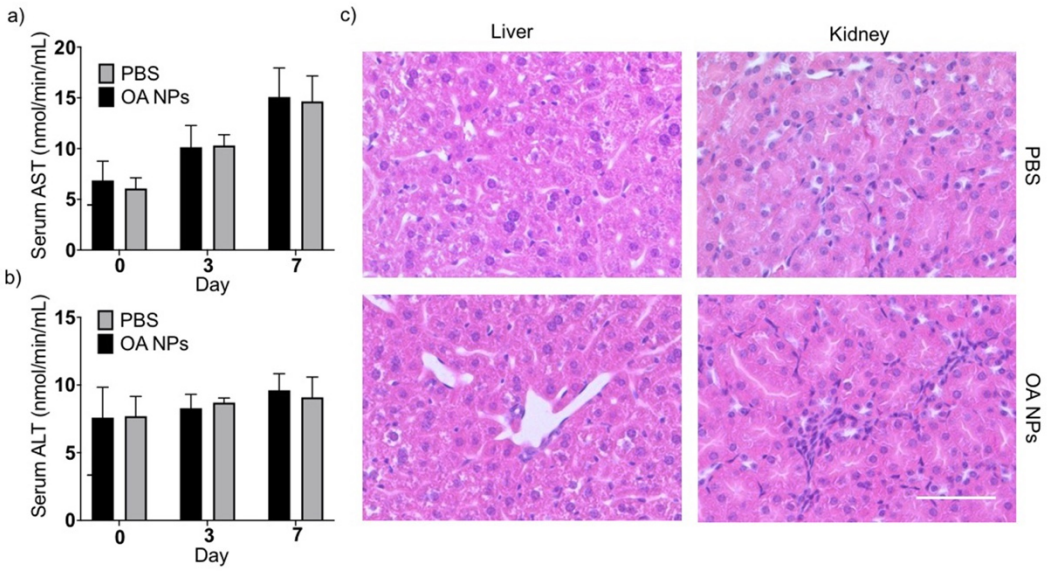

Figure S3. Evaluation of systemic toxicity of OA NPs. Intravenous administration of OA NPs did not induce significant hepatotoxicity based on AST test (a) and ALT test (b); (c) Representative images of H&E staining of liver and kidney isolated from mice received treatment of PBS and OA NPs. Scale bar: 100 μm.

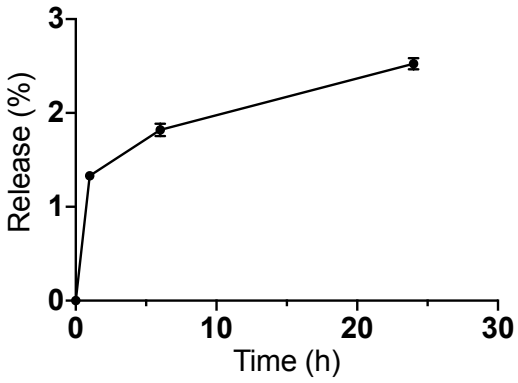

Figure S4. Release of IR780 from IR780-loaded OA NPs (IR780-OA NPs) in PBS (pH = 7.4) over the first 24 hours (n = 3).

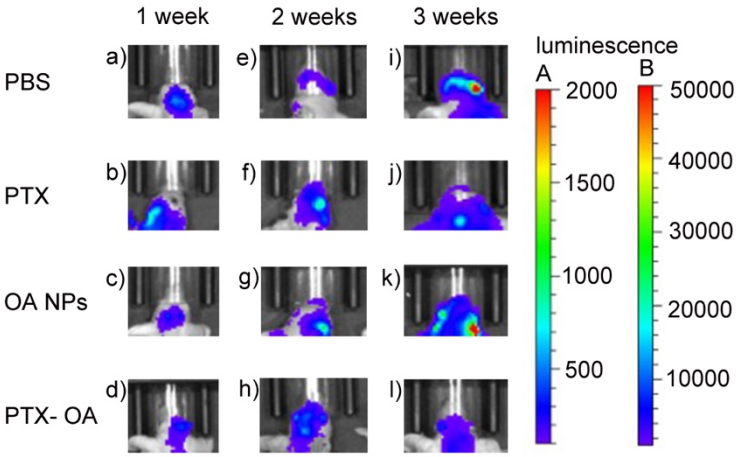

Figure S5. Representative IVIS images of BCBMs progression under different treatments. Scale A was for images a)-d) and h). Scale B was for images e)-g) and i)-l).

Table S1 Combination cell inhibitory effect of PTX and OA NPs in PTX-OA NPs on MDA-MB-231-WT cells

IC_x	PTX	OA NPs	PTX-OA NPs	CI
x = 25	5.69	5.64	3.92	0.69
x = 50	10.84	15.11	8.14	0.58
x = 75	17.36	30.98	14.43	0.53

The combination indices were calculated by the following formula: $CI = [C'_{x, PTX} / C_{x, PTX}] + [C'_{x, OA\ NPs} / C_{x, OA\ NPs}]$, where, $C_{x, PTX}$: concentration of PTX with x% cell inhibition in PTX only group; $C_{x, OA\ NPs}$: concentration of OA NPs with x% cell inhibition in OA NPs only group; $C'_{x, PTX}$: concentration of PTX with x% cell inhibition in PTX-OA NPs combination group; $C'_{x, OA\ NPs}$: concentration of OA NPs with x% cell inhibition in PTX-OA NPs combination group.

Table S2 Combination cell inhibitory effect of PTX and OA NPs in PTX-OA NPs on MCF-7 cells

IC_x	PTX	OA NPs	PTX-OA NPs	CI
x = 25	7.92	7.82	5.21	0.66
x = 50	13.68	11.19	9.68	0.84
x = 75	32.21	21.88	18.77	0.81

The combination indices were calculated by the following formula: $CI = [C'_{x, PTX} / C_{x, PTX}] + [C'_{x, OA\ NPs} / C_{x, OA\ NPs}]$, where, $C_{x, PTX}$: concentration of PTX with x% cell inhibition in PTX only group; $C_{x, OA\ NPs}$: concentration of OA NPs with x% cell inhibition in OA NPs only group; $C'_{x, PTX}$: concentration of PTX with x% cell inhibition in PTX-OA NPs combination group; $C'_{x, OA\ NPs}$: concentration of OA NPs with x% cell inhibition in PTX-OA NPs combination group.