Electronic Supplementary Material (ESI) for Biomaterials Science.
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Supporting Information

Combined photothermal-immunotherapy *via* poly-tannic acid coated PLGA nanoparticles for cancer treatment

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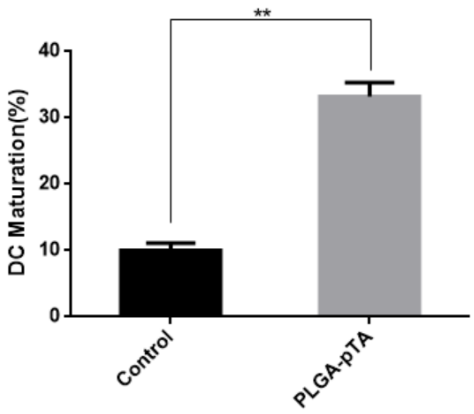

Figure S1. Quantification of DC maturation level induced by blank medium or PLGA-pTA *in vitro* (*n*=2). **: P < 0.01 by *t* test.

Toxicity evaluation

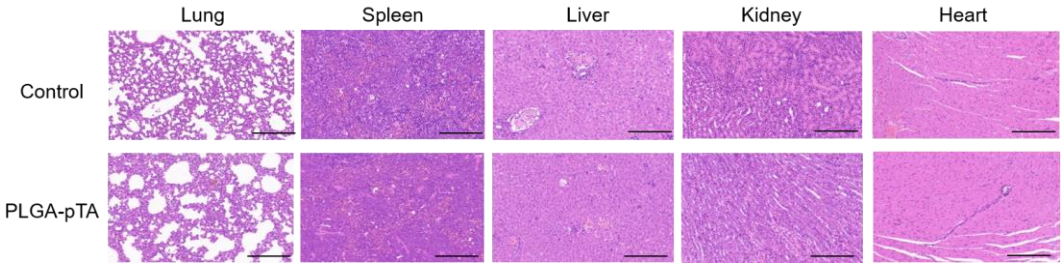

Figure S2. H&E staining images of major organs dissected from the control group and PLGA-pTA treated group. Scale bar is 200 μm.

Distribution and clearance

The distribution and clearance of PLGA-pTA NPs was studied *via* an *in vivo* imaging system (IVIS, Molecular Devices). PLGA-pTA loaded with DiR (a fluorescent probe) was intratumorally (*i.t.*) injected into the mouse and images were taken at different time points. Results showed that no fluorescence signal was detected other than the tumor site, which illustrated that PLGA-pTA NPs mainly accumulated at the tumor area and did not migrate to other organs with time. Also, the fluorescence intensity had no decrease after a long period of observation, revealing a slow clearance and long retention of nanoparticles in tumors (Figure S3).

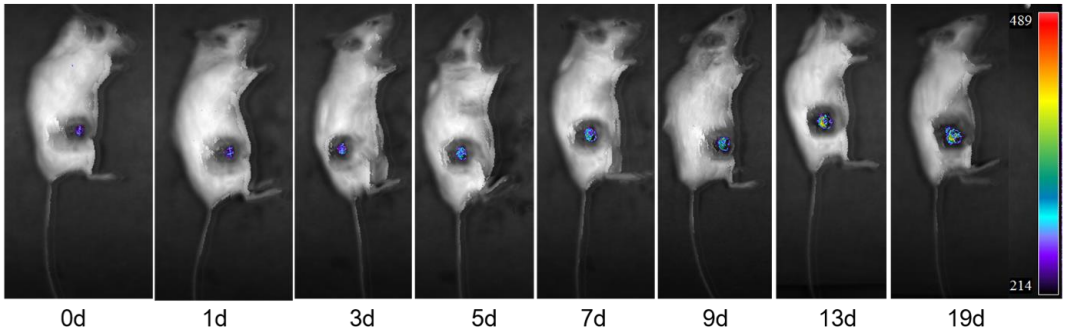

Figure S3. The *in vivo* distribution of DiR@PLGA-pTA after intratumoral injection.

Photothermal performance of pTA and PLGA-pTA

We compared the photothermal performance of pTA and PLGA-pTA under the same pTA concentrations. Results showed that there was no obvious difference in the photothermal effect between pTA and PLGA-pTA. Therefore, the photothermal performance of pTA was not affected by the presence of PLGA core (As shown in Figure S4).

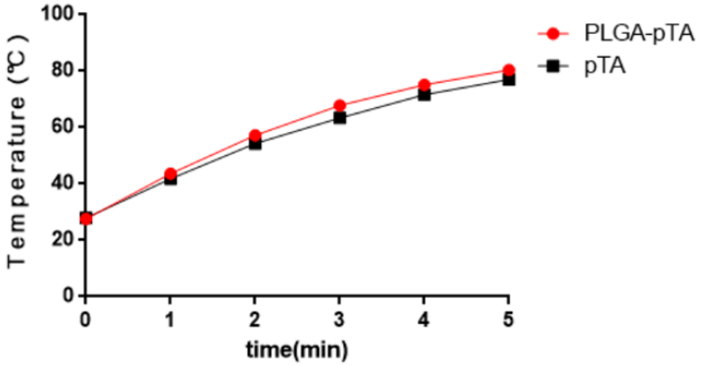

Figure S4. Temperature changing curves of pTA and PLGA-pTA under 808nm laser irradiation (at pTA concentration of 53 μg/mL).

Cellular uptake

We have explored the cellular uptake of PLGA-pTA by 4T1 cells with different methods. Coumarin 6 (C6) was loaded into PLGA-pTA serving as a fluorescence probe. As shown in Figure S5, PLGA-pTA could be uptaken by 4T1 cells after 2 h of incubation. And there was no significant difference in the cellular uptake efficiency between the PLGA and PLGA-pTA NPs, indicating that the pTA coating had minimal effect on the cellular uptake of PLGA nanoparticles.

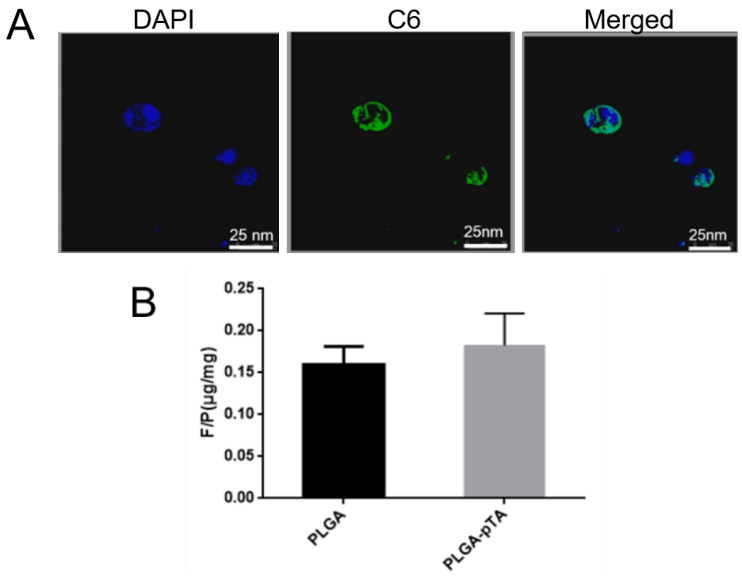

Figure S5. (A) Confocal fluorescence images of 4T1 cells after 2h incubation with C6@PLGA-pTA NPs. (B) Cellular uptake efficiency of C6@PLGA-pTA and C6@PLGA. (F/P represented the mass of fluorescence probe per milligram of protein).