# Supporting information

Platelet-mimicking drug delivery nanoparticles for enhanced chemo-photothermal therapy of breast cancer

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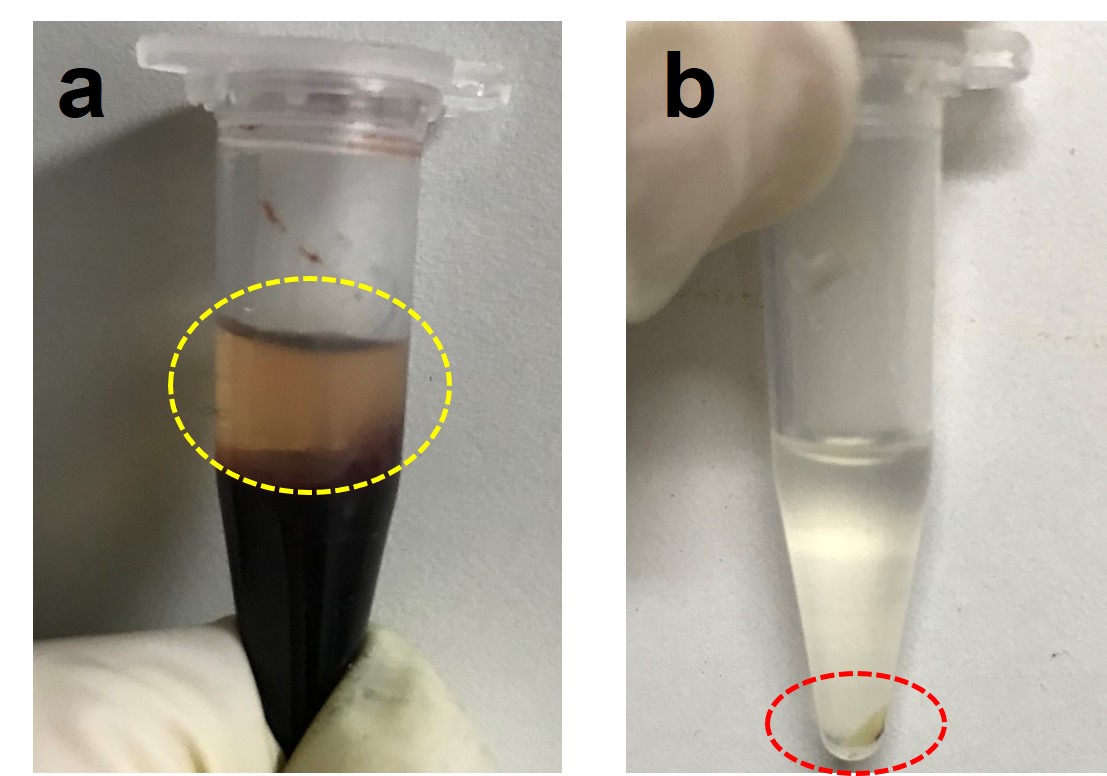
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**Keywords**

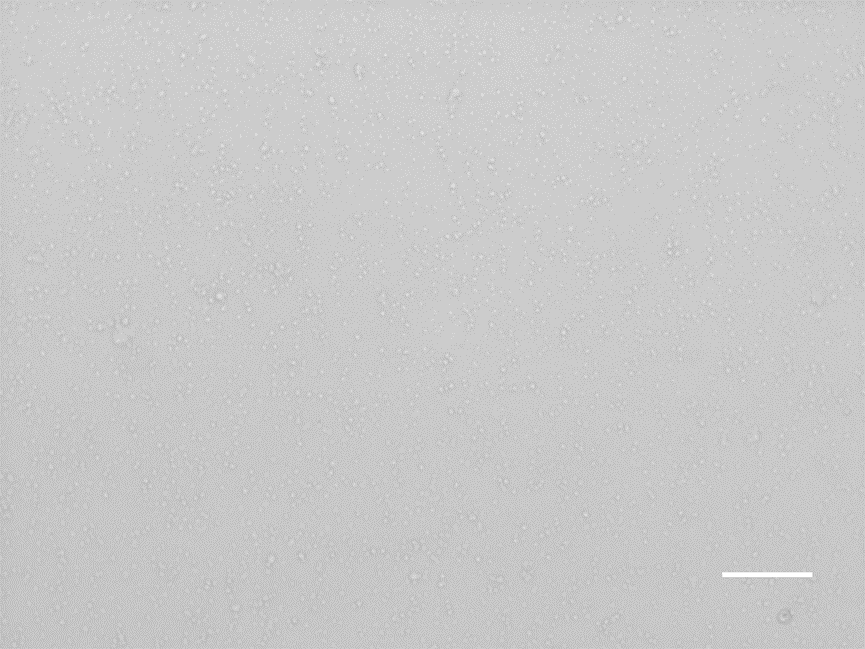
Platelet-mimicking, Drug delivery, IR780, Doxorubicin, Chemo-photothermal therapy

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**The preparation of platelet membranes**: To isolate platelets, the mice whole blood was first centrifuged at 300 × g for 5 minutes at room temperature. The supernatant is then collected and centrifuged at 300 × g for another 5 minutes. The supernatant obtained is platelet rich plasma（PRP）. Afterwards, the PRP was centrifuged at 2000 × g for 4 minutes in order to precipitate the platelets. The platelets membrane was obtained by repeated freeze–thaw process. Aliquots of PLT suspensions were frozen at −80 °C, and thawed at room temperature. After repeated three times, the pellet was washed with PBS at 2,1000 × g for three times and finally resuspended in water, sonicated for 5 minutes and stored at -80 °C.



**Fig. S1.** Centrifugation to obtain platelets. (a) The supernatant was PRP, indicated with yellow dash circle. (b)The precipitation was unpurified platelets, indicated with red dash circle.



**Fig. S2**. Photograph of platelets isolated from whole blood under light microscope, scale bar: 50 nm.



**Fig. S3.** Size distribution of PM-NPs.



**Fig. S4.** Fluorescence images of Raw264.7 cells incubated with NPs and PM-NPs for 0.5, 2.0, and 4.0 h. Scale bar: 100 μm.



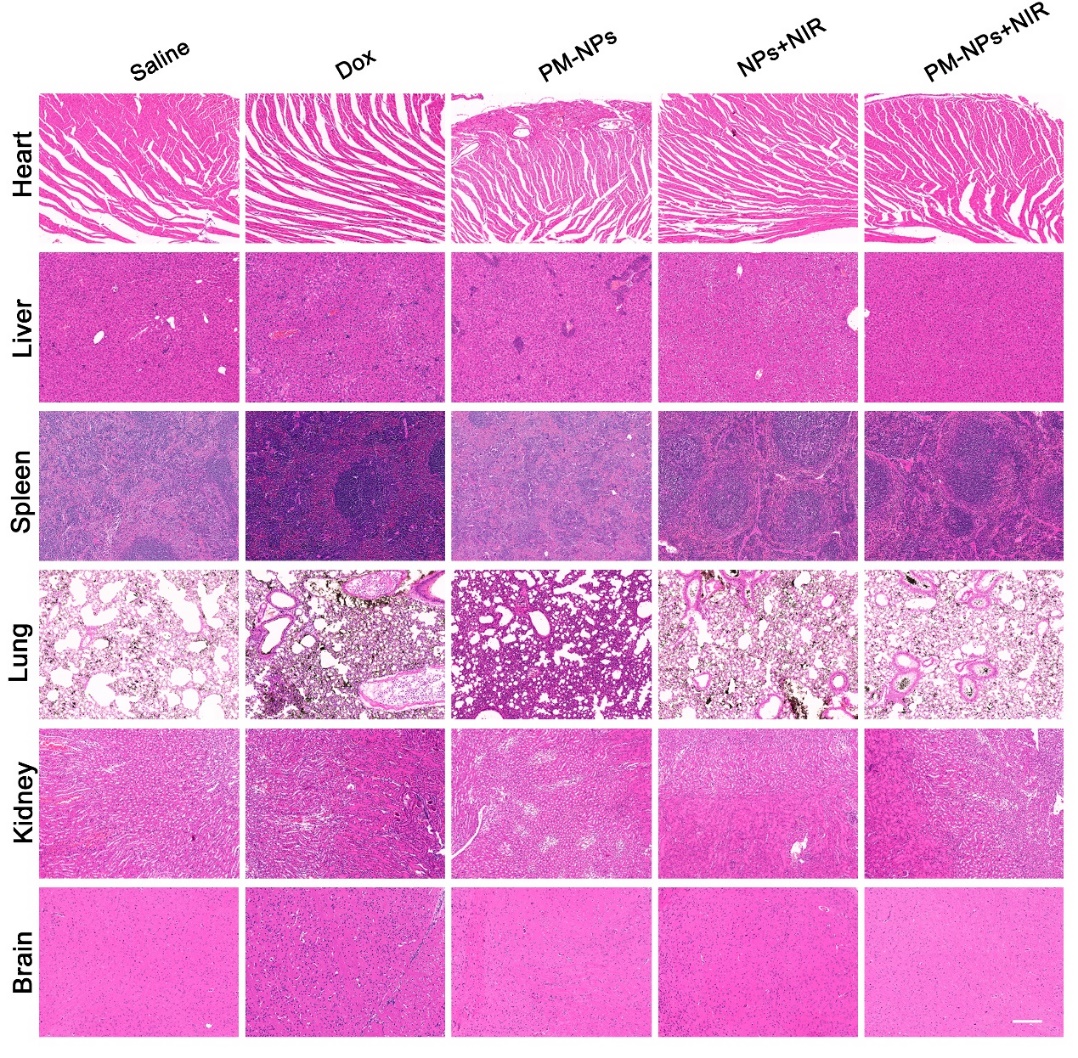
**Fig. S5.** Pharmacokinetics of NPs and PM-NPs after intravenous injection via tail vein at IR780 dose of 0.7 mg/kg. The plasma IR780 concentration curves of the NPs and PM-NPs.



**Fig. S6.** In vivo fluorescence images of the Dox distribution in tumors of the 4T1 tumor bearing mice treated with NPs and PM-NPs. Scale bar: 100 μm.



**Fig. S7.** The body weight variation of 4T1 tumor-bearing mice during the treatment.



**Fig. S8.** Histological observation of the organs collected from the 4T1 tumor-bearing mice after the treatment at day 18. The organ sections were stained with H&E. Scale bar: 200 µm.

**Table. S1** Drug loading content and encapsulation efficiency of PM-NPs.

|  |  |  |
| --- | --- | --- |
|  | Drug loading content (%) | Encapsulation efficiency (%) |
| IR780 | 1.69 | 71.26 |
| Dox | 1.11 | 46.76 |

**Table. S2** Pharmacokinetic parameters of the NPs and PM-NPs.

|  |  |  |
| --- | --- | --- |
| Parameter | NPs | PM-NPs |
| AUC (μg/mL·h)0-t | 118.05±7.1 | 213.34±18.14\*\* |
| T1/2 (h)  CL (mL/h) | 12.974±1.8  0.217±0.013 | 30.800±3.1\*\*\*  0.121±0.010\*\*\* |

AUC0-t: Area under plasma IR780 concentration versus time curves

T1/2: Elimination half-life

CL: in vivo clearance rate

\*\*p˂0.01, \*\*\*p˂0.001 (two-tailed Student’s t-test).