

Title:

Enhanced Drug Internalization and Therapeutic Efficacy of PEGylated Nanoparticles by One-step Formulation with Anti-mPEG Bispecific Antibody in Intrinsic Drug Resistant Breast Cancer

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Supplementary Information

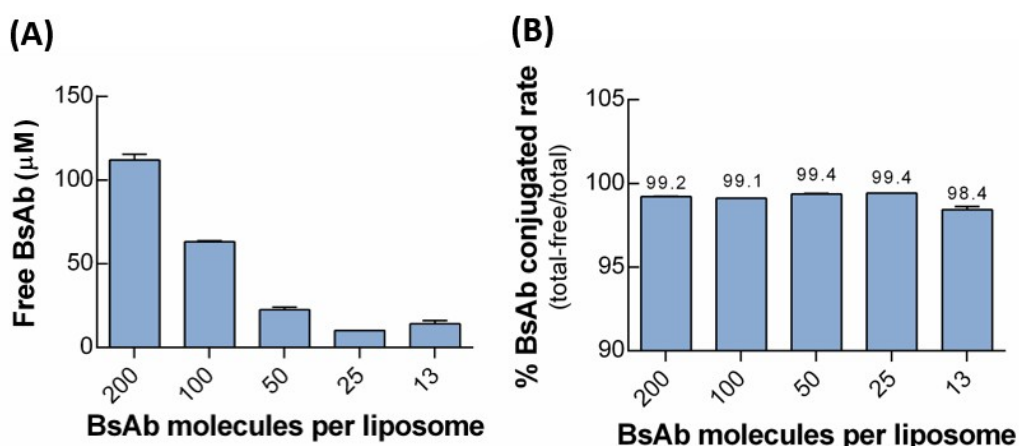


Figure S1. The conjugated rate of the α HER2/PLD. (A) The different amount of BsAb mixed with α HER2/PLD. After 5 min incubation, the α HER2/PLDs were added in mPEG/BSA-coated 96-well plate, and then the free BsAb (unbound) was detected by ELISA using HRP-conjugated anti-human Fab antibody. (B) The conjugated rate of α HER2/PLD were calculated by total number of BsAb minus number of free BsAb then divide by number of total BsAb. Results show the mean absorbance values (n=3). Bar, SD.

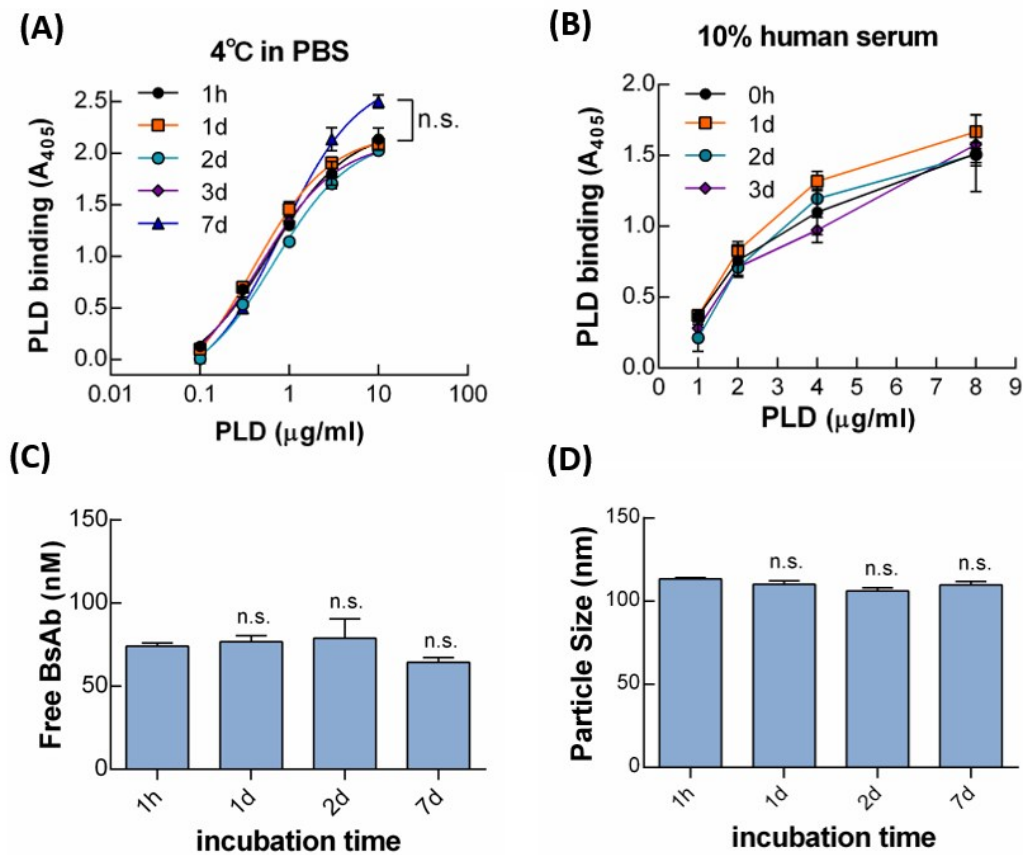


Figure S2. Stability of the $\alpha\text{HER2/PLD}$. **(A)** The storage stability of $\alpha\text{HER2/PLD}$ at 4°C was examined by detecting the particle size. (n=3). Bars, SD. Statistics indicate student unpaired t test. **(B)** The $\alpha\text{HER2/PLD}$ was incubated at 37°C in 10% human serum/PBS (vol/vol) for 3 days and then was detected HER2 binding ability. Results show the mean absorbance values (n=3). Statistics indicate student unpaired t test. **(C)** The free BsAb and **(D)** the particle size of $\alpha\text{HER2/PLD}$ at 4°C in PBS for 7d incubation was evaluated (n=3).

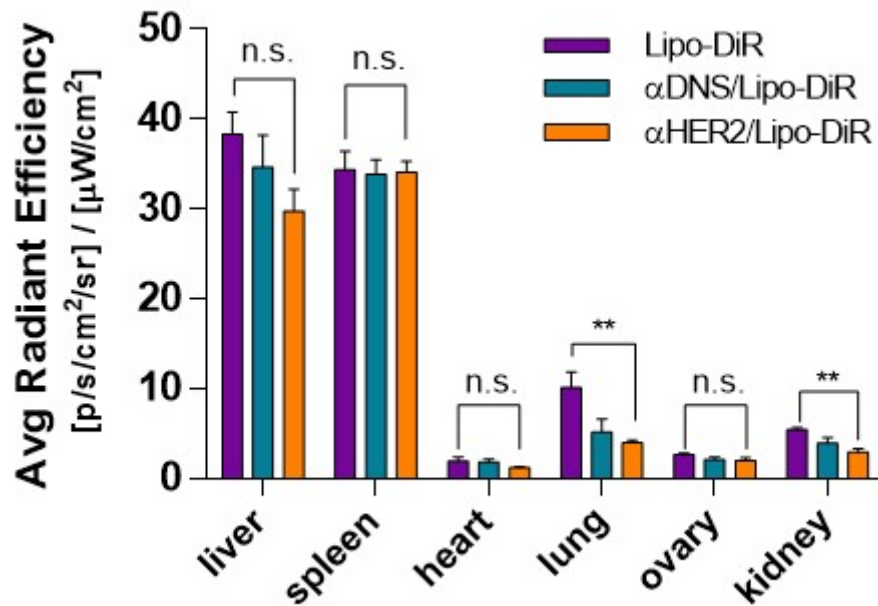


Figure S3. The off-target of the αHER2/PLD in mice.

Nude mice (n=3) were intravenously injected with Lipo-DiR, αDNS/Lipo-DiR and αHER2/Lipo-DiR, respectively. After 72h, the mice were sacrificed and detected the fluorescence intensity of organs (liver, spleen, heart, lung, ovary and kidney). Results show the average radiant efficiency. Statistics indicate student unpaired t test. ** $P < 0.001$. n.s., not significant.

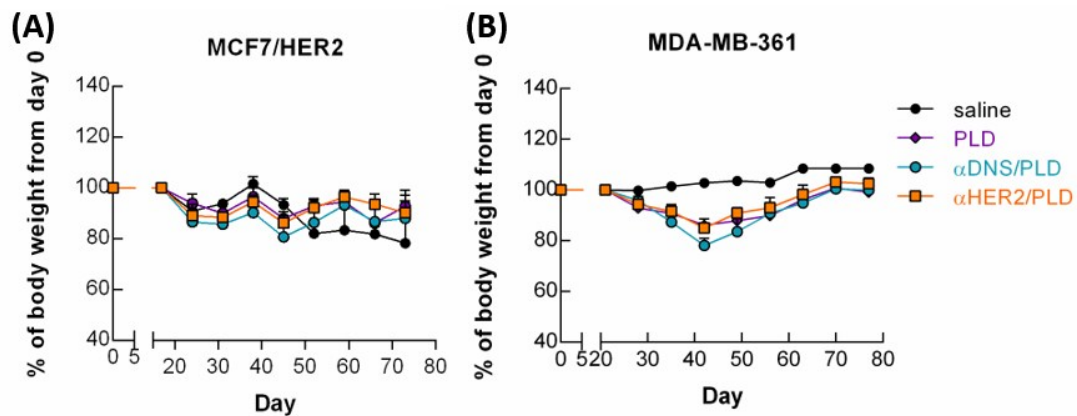


Figure S4. The body weight of αHER2/PLD. (A) Nude mice bearing MCF7/HER2 tumors and (B) SCID mice bearing MDA-MB-361 tumors were intravenously injected with saline (●), 5 mg/kg PLD (◆), 5 mg/kg αDNS/PLD (●), or 5 mg/kg αHER2/PLD (■), respectively. Mean body weights of treated mice during treatment are shown.

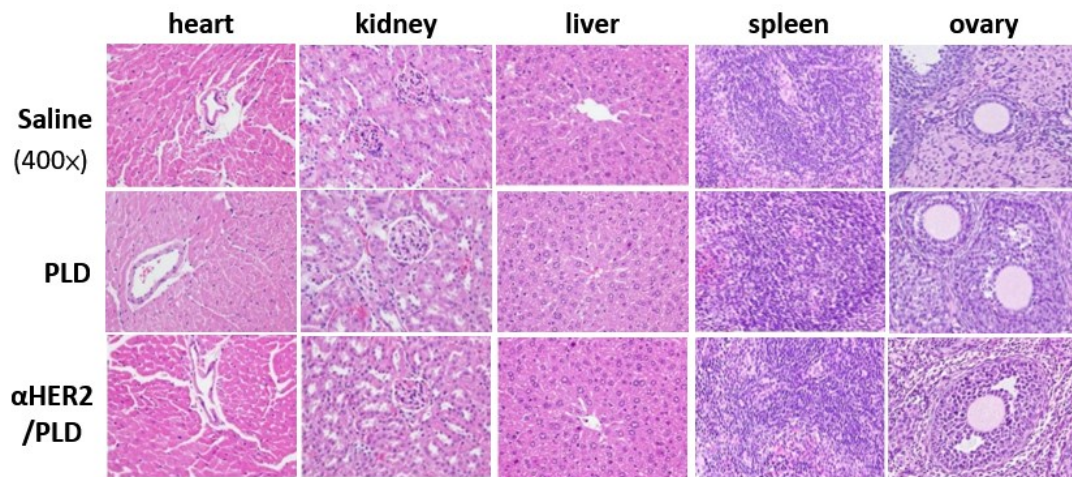


Figure S5. The histopathological of α HER2/PLD.

Female BALB/c mice (n=6) were intravenously injected with saline, 5 mg/kg PLD or 5 mg/kg α HER2/PLD, respectively. Treatment was performed once a week for 3 weeks. The mice were sacrificed and the tissue section were stained H&E. 400x.