Supplementary Information for:

Fabricating an intelligent cell-like nano-prodrug *via* the hierarchical self-assembly based on DNA skeleton for lung metastasis of breast cancer therapy†

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Table S1. DNA sequences used in this work.

Oligonucleotide	Sequences (from 5' to 3')
$\mathbf{T_{0a}}$	CTG TCA TCG GTC AC ACA TTC CTA AGT CTG AAA CAT TAC AGC TTG CTA CAC GAG AAG AGC CGC CAT AGT A
$\mathbf{T_{0b}}$	CTG TCA TCG GTC AC TAT CAC CAG GCA GTT GAC AGT GTA GCA AGC TGT AAT AGA TGC GAG GGT CCA ATA C
$\mathbf{T_{0c}}$	CTG TCA TCG GTC AC TCA ACT GCC TGG TGA TAA AAC GAC ACT ACG TGG GAA TCT ACT ATG GCG GCT CTT C
$\mathbf{T_{0d}}$	CTG TCA TCG GTC AC TTC AGA CTT AGG AAT GTG CTT CCC ACG TAG TGT CGT TTG TAT TGG ACC CTC GCA
$\mathbf{T_{1a}}$	GAA GCC ACT CTG AT ACA TTC CTA AGT CTG AAA CAT TAC AGC TTG CTA CAC GAG AAG AGC CGC CAT AGT A
$\mathbf{T_{1b}}$	GTG ACC GAT GAC AG TAT CAC CAG GCA GTT GAC AGT GTA GCA AGC TGT AAT AGA TGC GAG GGT CCA ATA C
$\mathbf{T_{1c}}$	GAA GCC ACT CTG AT TCA ACT GCC TGG TGA TAA AAC GAC ACT ACG TGG GAA TCT ACT ATG GCG GCT CTT C
$\mathbf{T_{1d}}$	GAA GCC ACT CTG AT TTC AGA CTT AGG AAT GTG CTT CCC ACG TAG TGT CGT TTG TAT TGG ACC CTC GCA T
$\mathbf{T_{2a}}$	GAC CGA TGG ATG AG ACA TTC CTA AGT CTG AAA CAT TAC AGC TTG CTA CAC GAG AAG AGC CGC CAT AGT A
$\mathbf{T_{2b}}$	ATC AGA GTG GCT TC TAT CAC CAG GCA GTT GAC AGT GTA GCA AGC TGT AAT AGA TGC GAG GGT CCA ATA C
$\mathbf{T_{2c}}$	GAC CGA TGG ATG AG TCA ACT GCC TGG TGA TAA AAC GAC ACT ACG TGG GAA TCT ACT ATG GCG GCT CTT C
$\mathbf{T_{2d}}$	GAC CGA TGG ATG AG TTC AGA CTT AGG AAT GTG CTT CCC ACG TAG TGT CGT TTG TAT TGG ACC CTC GCA T
SH-DNA	CTCATCCATCGGTC-C6-SH

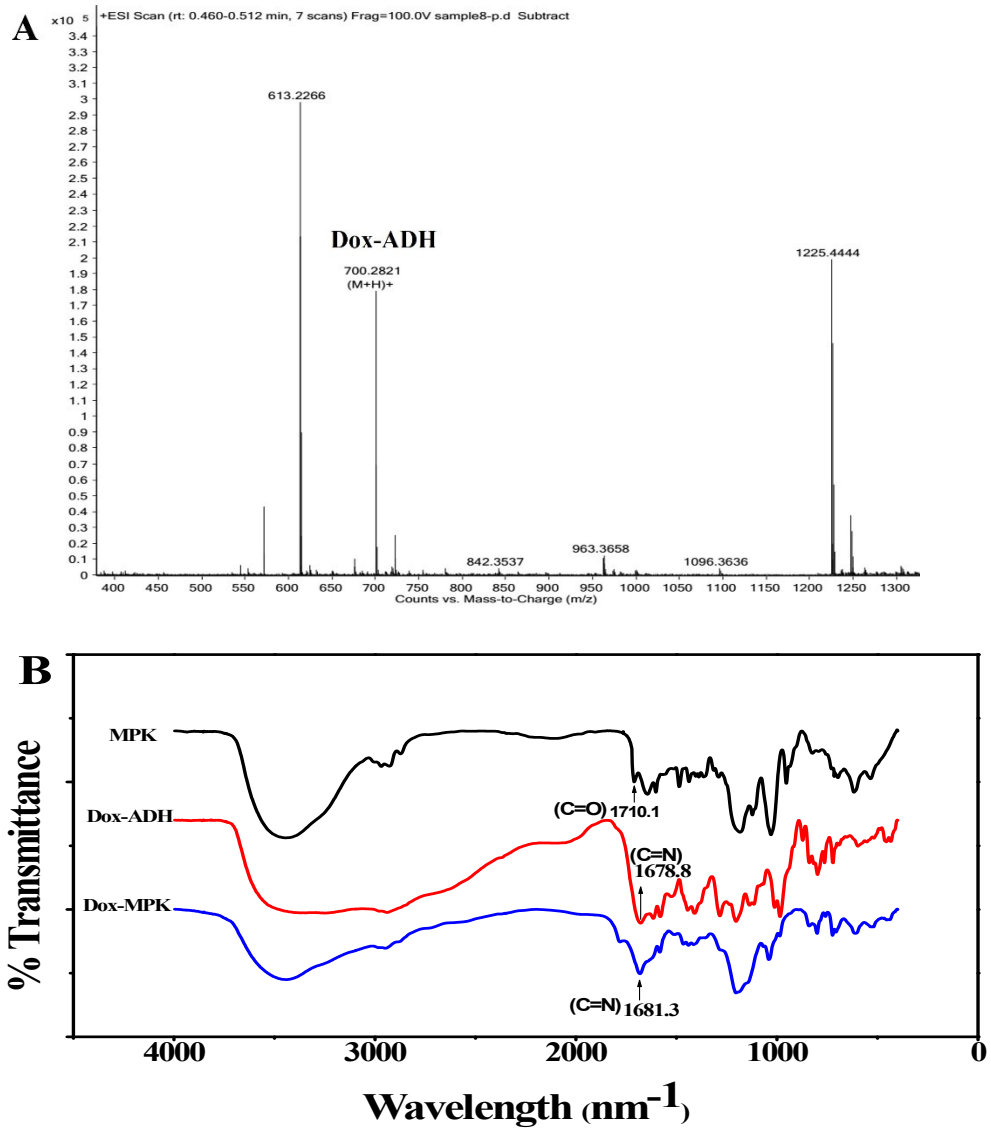

Figure S1. (A) The mass spectrum of Dox-ADH (m/z = 700 [M+ +1, C33H41N5O12]). (B) FT-IR spectra of MPK, Dox-ADH, and Dox-MPK.

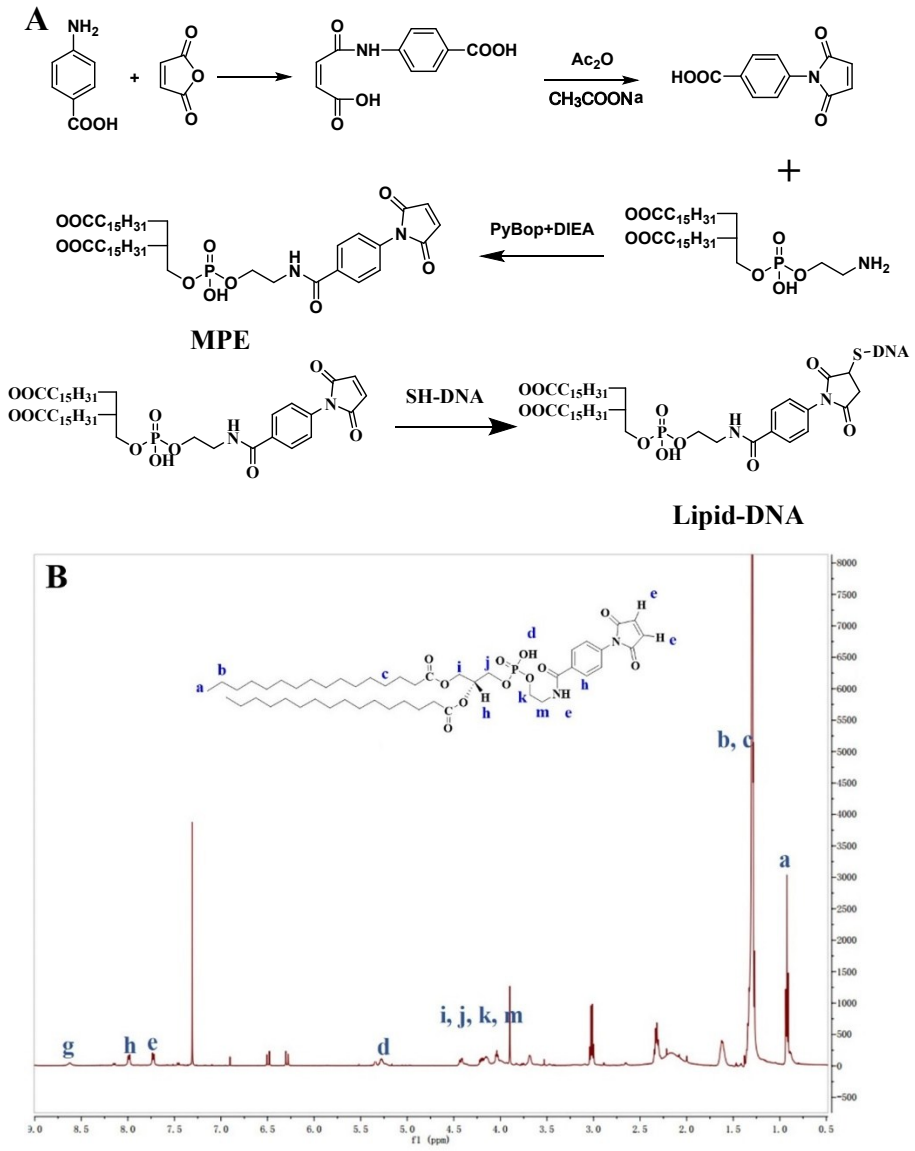

Figure S2. (A) The synthesis procedure of Lipid-DNA. (B) The ^{1}H-NMR spectra of MPE.

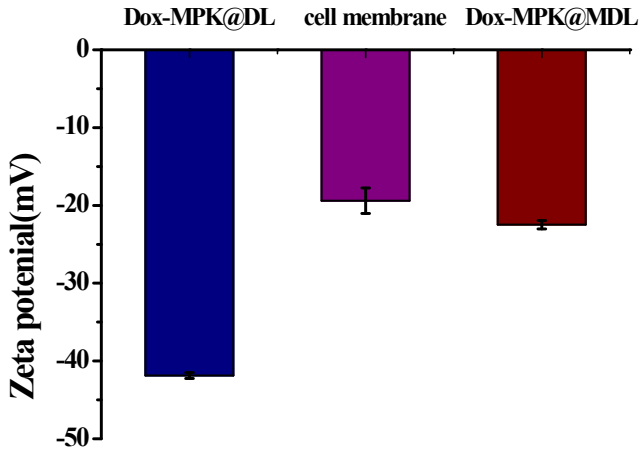

Figure S3. Surface charge of Dox-MPK@DL, macrophage membrane, and Dox-MPK@MDL, n=3.

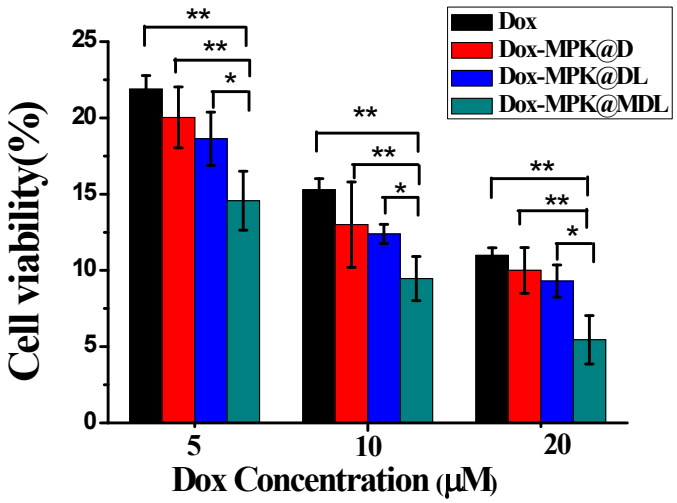

Figure S4. Cytotoxicity of each group at different concentrations of Dox, n=6, *p < 0.05, **p < 0.01

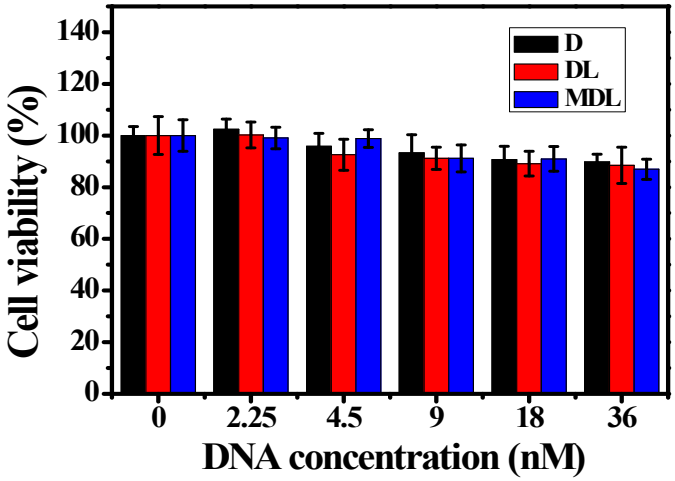

Figure S5. Cytotoxicity of blank D, DL and MDL without Dox in metastatic 4T1 cancer cells, n=6.

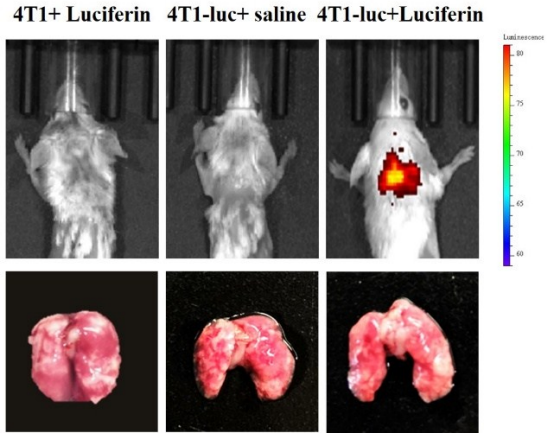

Figure S6. In vivo bioluminescence imaging of lung metastasis and photograph of lung lung tissues on the fourteenth day.

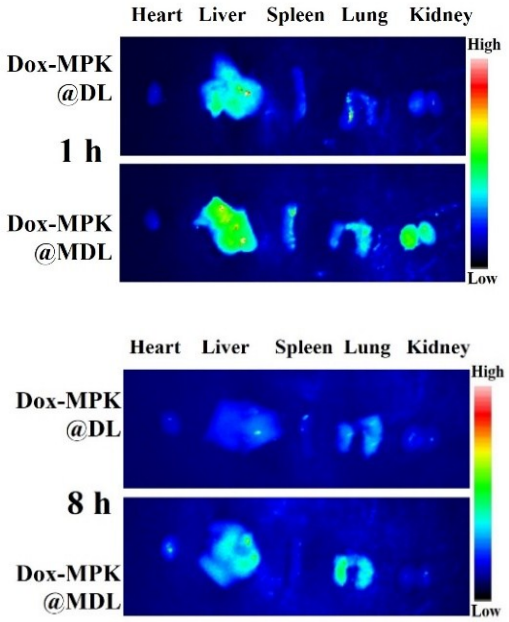

Figure S7. Corresponding ex vivo imaging of major organs at 1 h and 8 h post-injection.

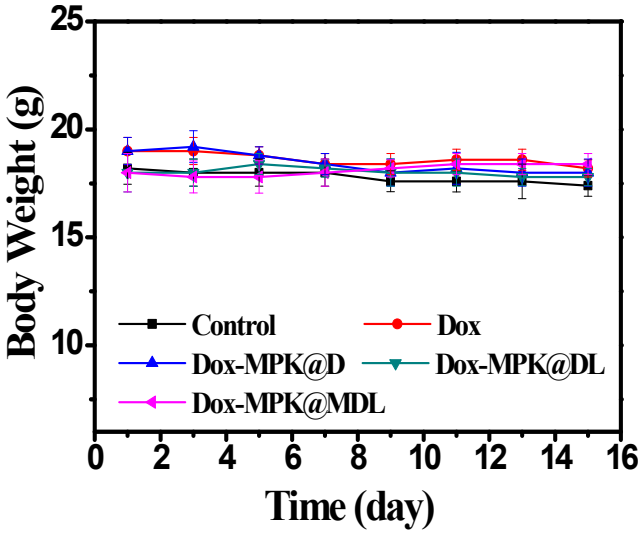

Figure S8. Body weight of each group of mice during the treatment period, n=5.

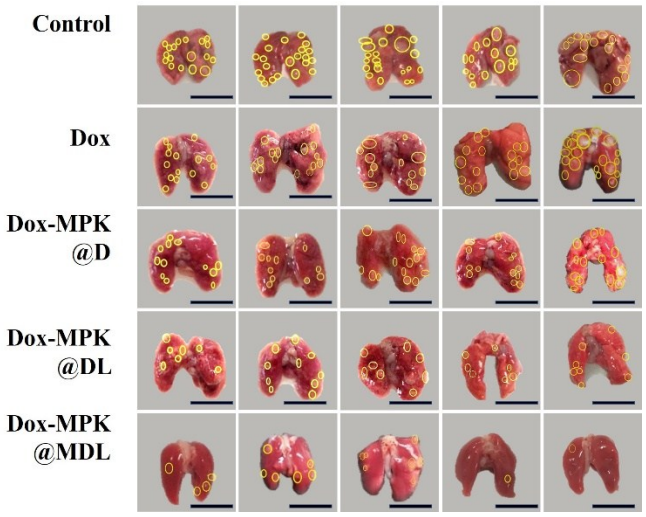

Figure S9. Typical photographs of lung tissues from each group, scale bar = 1 cm.

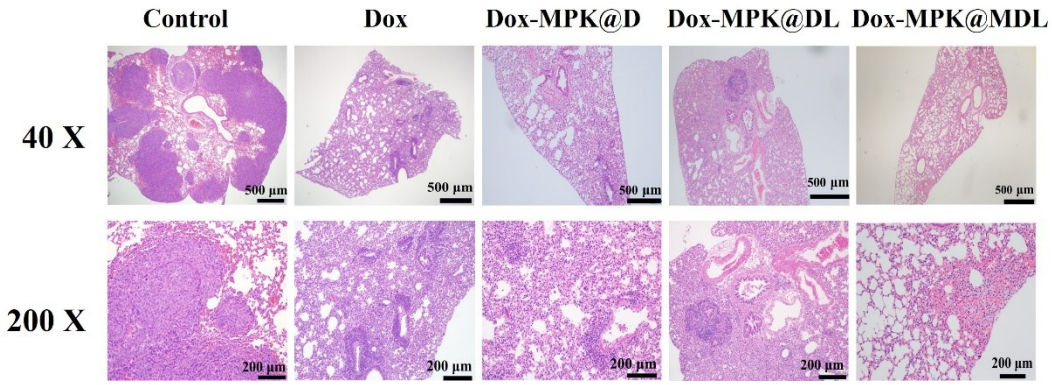

Figure S10. Histopathology sections of metastatic lesions in lung tissues from each group.