

Supplementary Information:

Transferrin-Conjugated Polymeric Nanoparticle for Receptor-Mediated Delivery of Doxorubicin in Doxorubicin-Resistant Breast Cancer Cells

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Synthesis of carboxylated poloxamer F127

Carboxylated F127 was characterized by FTIR and proton nuclear magnetic resonance ^1H NMR analysis (Figure S2). According to its FTIR spectrum, the specific peaks such as C–O–C, O–H, C=O and methyl groups that are corresponding peaks of succinic anhydride and F127 occurred at (1159, 1630, 1735, and 2885) cm^{-1} . Moreover, carboxylated F127 was confirmed by peaks obtained from ^1H -NMR analysis.

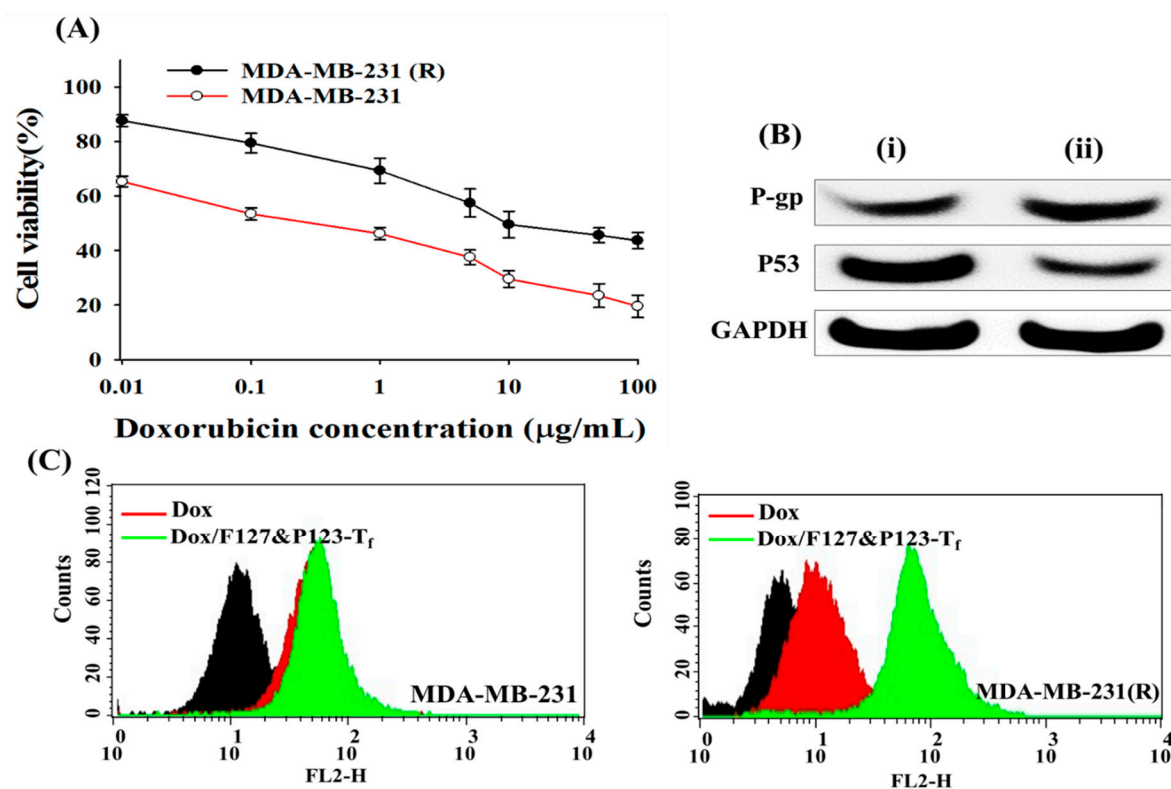


Figure S1. Characterization of implemented Dox-resistant MDA-MB-231(R) cells. (A) Cell viability of MDA-MB-231 and MDA-MB-231(R), (B) different proteins level (P-gp and P53) of MDA-MB-231 and MDA-MB-231(R), and (C) cellular uptake of Dox and Dox/F127&P123-T_f in MDA-MB-231 and MDA-MB-231(R).

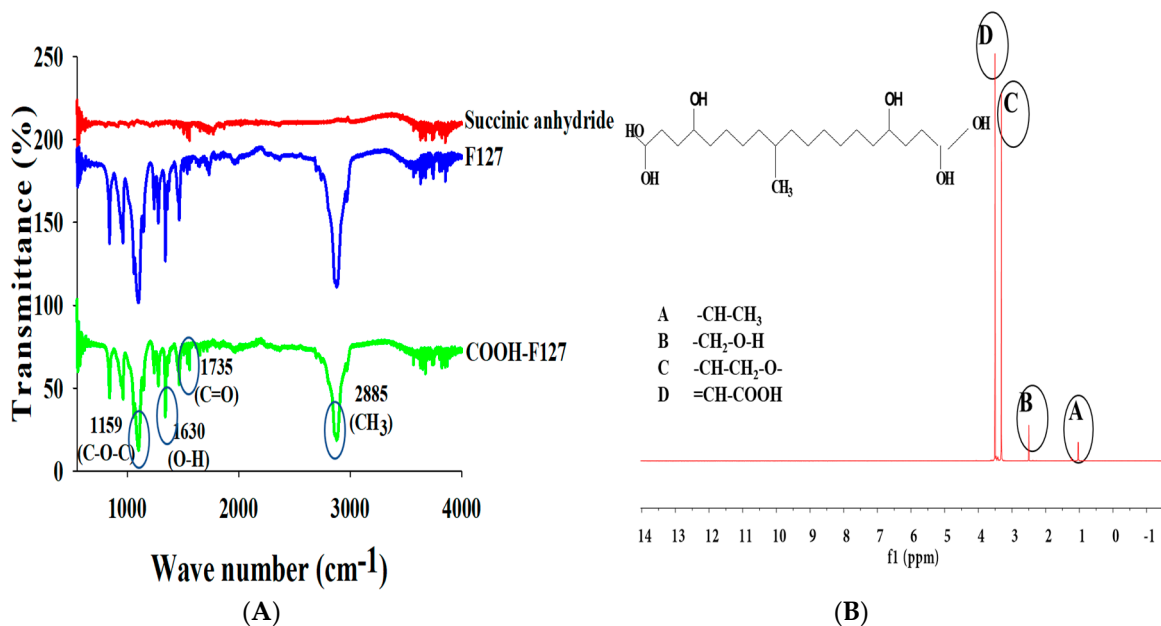


Figure S2. (A) FTIR spectrum and (B) ^1H NMR analysis of carboxylated poloxamer F127.

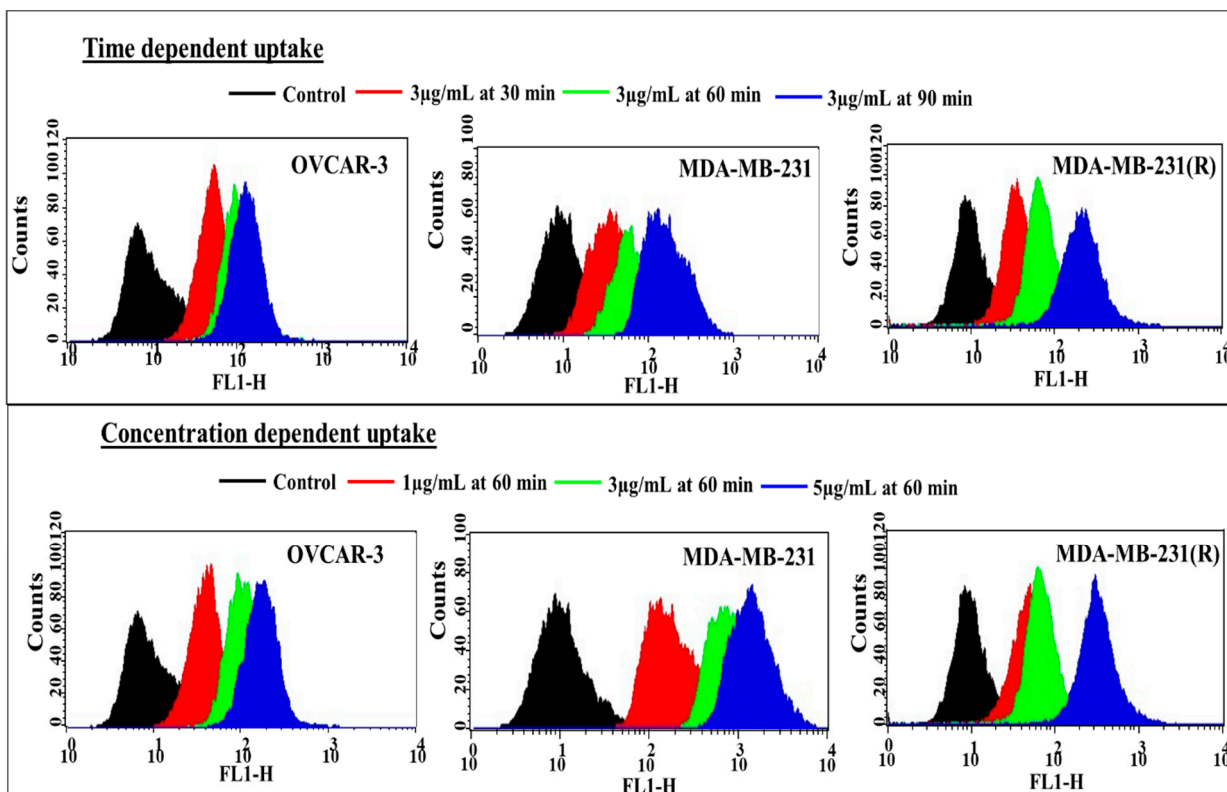
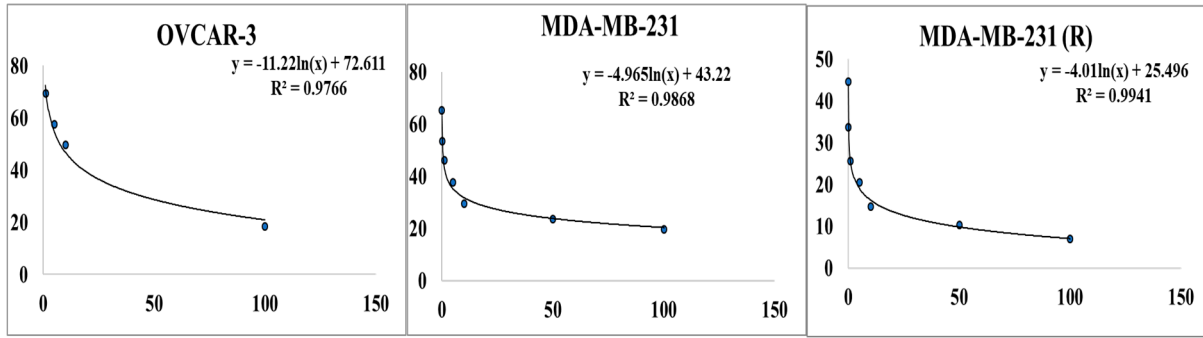


Figure S3. Comparison of time-dependent and concentration-dependent cellular uptake efficiency of Dox/F127&P123 in OVCAR-3, MDA-MB-231, and MDA-MB-231(R).

Standard curve for IC50 value of Dox



Standard curve for IC50 value of Dox/F127&P123

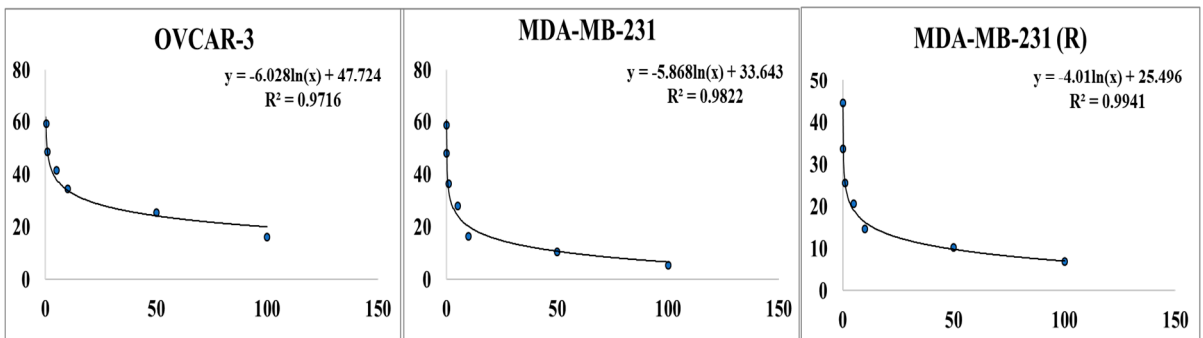


Figure S4. Standard curve for calculation of IC 50 value of Dox and Dox/F127&P123-Tr.

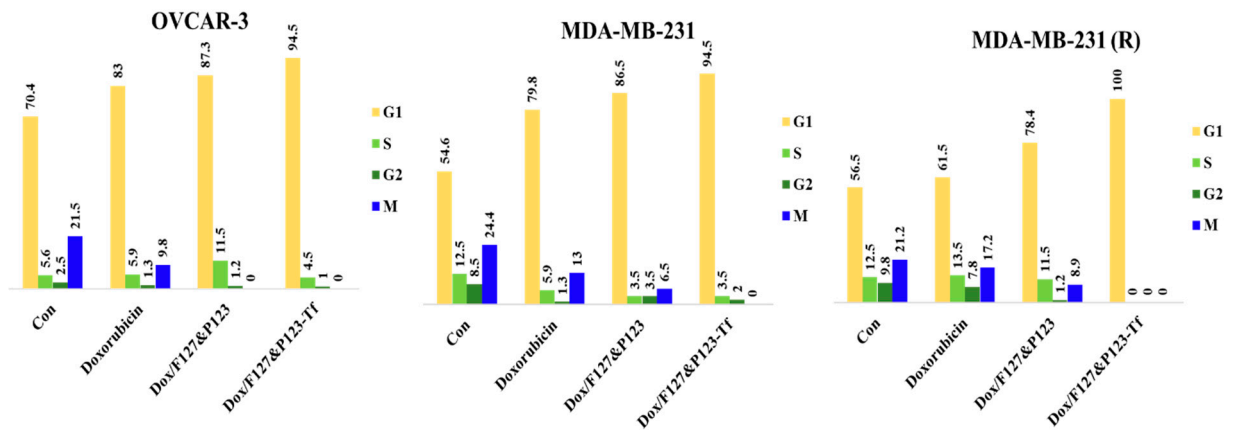


Figure S5. Quantitative evaluation of comparison of cell cycle distribution of Dox, Dox/F127&P123 and Dox, Dox/F127&P123-Tr in OVCAR-3, MDA-MB231, and MDA-MB231(R).

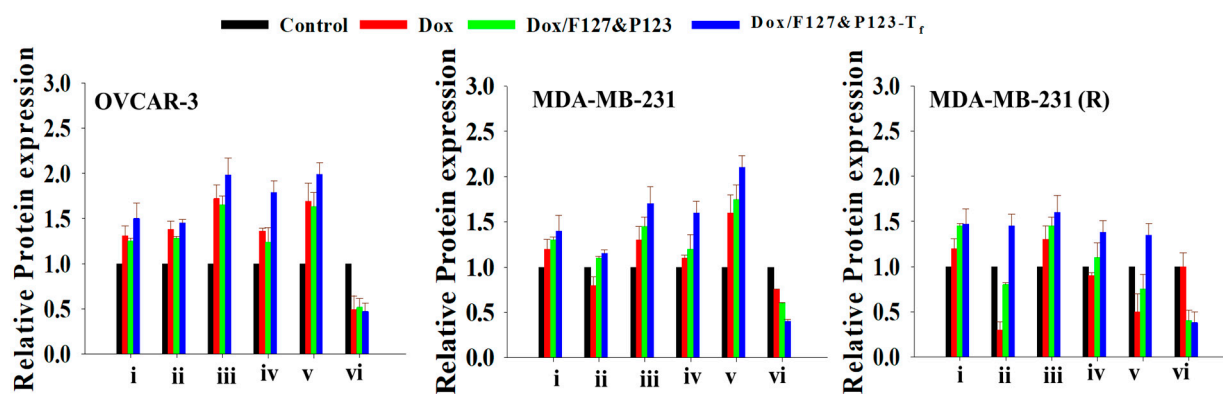


Figure S6. Quantitative evaluation of protein expression of (i) Cleaved-caspase 8, (ii) Cleaved-caspase 3, (iii) P27, (iv) P53, (v) BAX, and (vi) Bcl2 of P53 in OVCAR-3, MDA-MB231, and MDA-MB231 following treatment with Dox, Dox/F127&P123 and Dox, Dox/F127&P123-Ti.

Table S1. IC₅₀ values of Dox and Dox/F127&P123 in three cell lines.

Cell lines	Dox ($\mu\text{g/mL}$)	Dox/F127&P123 ($\mu\text{g/mL}$)
OVCAR-3	8.5 ± 0.98	0.9 ± 0.05
MDA-MB-231	7.9 ± 1.24	1.6 ± 0.98
MDA-MB-231(R)	80.4 ± 1.85	0.1 ± 0.04