

Article

Glycol chitosan-docosaehaenoic acid liposomes for drug delivery: synergistic effect of doxorubicin-rapamycin in drug-resistant breast cancer

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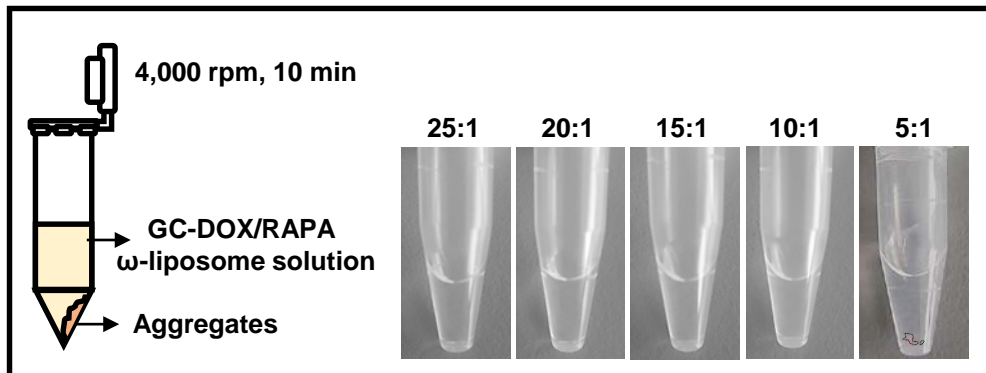


Figure S1. The images of GC-DOX/RAPA ω -liposome sample at different ratios after centrifugation. Precipitate (dotted line) stands for the aggregated GC-DOX/RAPA ω -liposomes in a tube after centrifugation. Supernatant is the remaining GC-DOX/RAPA ω -liposome solution.

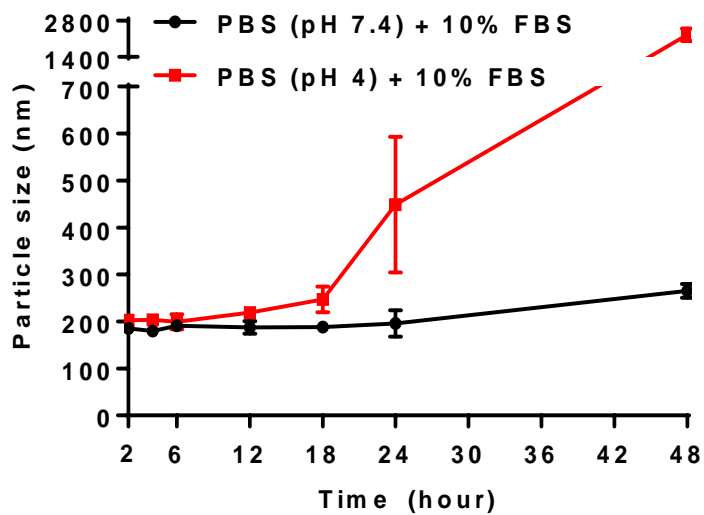


Figure S2. Colloidal stability of GC-DOX/RAPA ω -liposomes at pH 7.4 and pH 4 in 10% FBS. Particle size was monitored with dynamic light scattering over 48 hours (n = 3/time point).

Formulations	IC ₅₀ RAPA (nM)	IC ₅₀ DOX (nM)	Combination Index (CI)
RAPA ω -liposomes	74.12	N/A	N/A
GC-DOX	N/A	856.10	N/A
GC-DOX/RAPA ω -liposomes (1:1.5)	12.24	8.16	0.18

CI<1 Synergy

CI=1 Additive

CI>1 Antagonism

$$\text{Combination Index (CI)} = \frac{C_A}{IC_{50A}} + \frac{C_B}{IC_{50B}}$$

Figure S3. Drug combination index analysis for selected DOX and RAPA ratio (1:1.5) in MDA-MB-231-GFP/DOX cell lines. For drug combination testing, the cells were exposed to the indicated drugs for 72 h, and the IC₅₀ and combination index (CI) was calculated according to the equation.

Table S1. Components of GC-DOX/RAPA ω -liposomes

Formulations	Lipid composition (2 mg/mL)			Drug composition		E.E.		L.E.	
	DPPC	CHEMS	DHA	RAPA	DOX	RAPA	DOX	RAPA	DOX
RAPA ω -liposomes	47.5 mol%	47.5 mol%	5 mol%	10:1 (w/w)	-	69.88%	-	6.27%	-
GC-DOX/RAPA ω -liposomes	47.5 mol%	47.5 mol%	5 mol%	10:1 (w/w)	20:1 (w/w)	69.88%	90.29%	6.27%	4.05%