

Supplementary Material

**Title: Tailoring the Cationic Lipids Composition of Lipo-DVDMS
Augments the Phototherapy Efficiency of Burn Infection**

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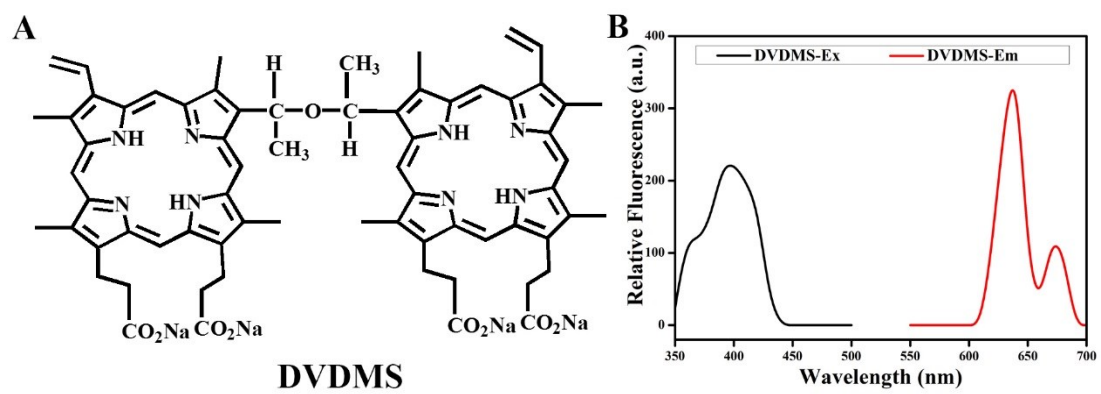


Fig. S1. Basic properties of photosensitizer DVDMS. (A) Chemical structure; (B) Fluorescence spectra.

Table S1. Entrapment Efficiency of different liposomes (DL, CDL1, CDL2, CDL3) at different drug to lipid ratios.

Drug to lipid ratio		1:10	1:20	1:50
Entrapment Efficiency (%)	DL	-	-	51.6±1.6
	CDL1	71.6±0.41	83.9±0.39	89.9±0.84
	CDL2	83.7±0.63	86.2±1.06	90.0±0.27
	CDL3	-	-	74.2±0.78

Table S2. Drug loading of different liposomes (DL, CDL1, CDL2, CDL3).

Sample	Drug loading (%)
DL	1.20 ± 0.10
CDL1	4.35 ± 0.14
CDL2	5.35 ± 1.62
CDL3	1.52 ± 0.07

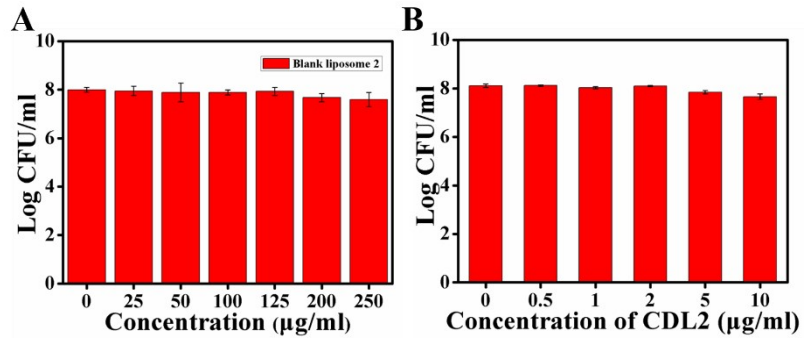


Fig. S2. Colony forming units of blank cationic liposome (A) and CDL2 (B) in *P. aeruginosa*.

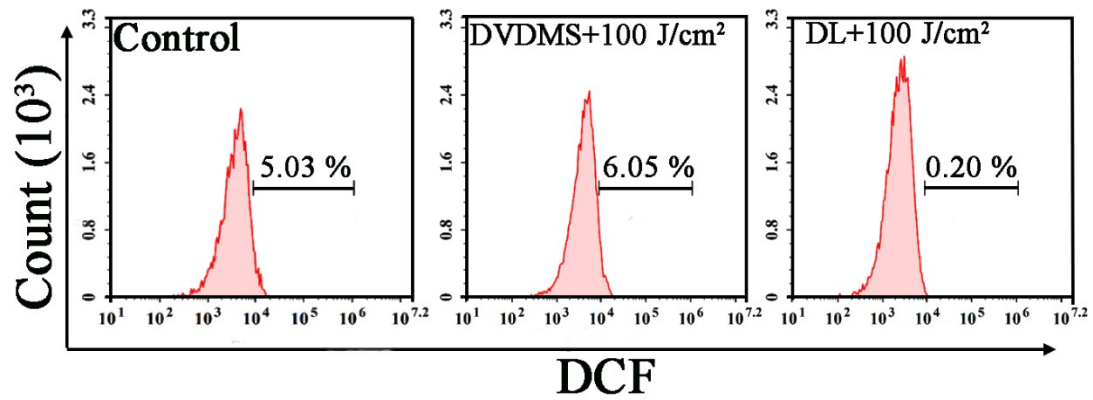


Fig. S3. ROS production of *P. aeruginosa* treated by DVDMS and DL mediated PACT.

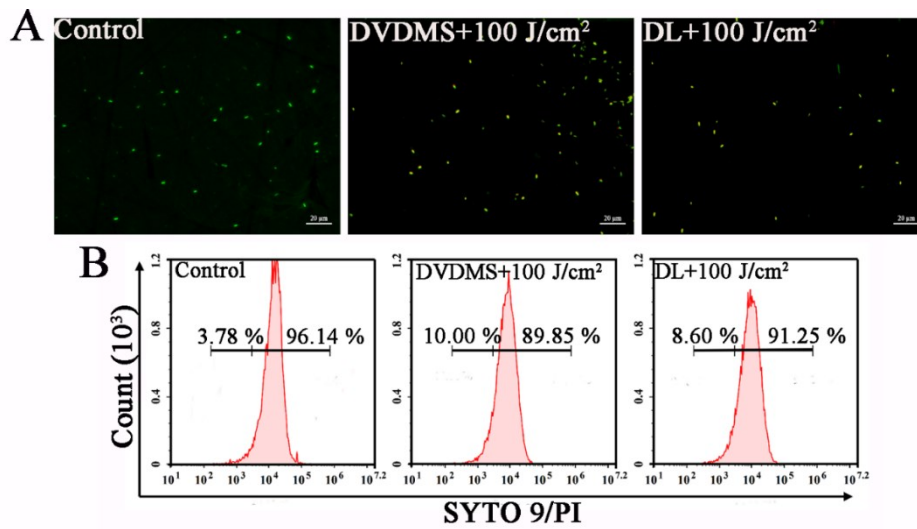


Fig. S4. SYTO 9/PI staining analyzed by fluorescence micrography (A) and flow cytometry (B). *P. aeruginosa* incubated with 10 $\mu\text{g/ml}$ DVDMS or DL combined with 100 J/cm^2 light.

Table S3. PCR reaction primer.

Gene	Primerdirection	Sequence (5' to 3')
rplu	Forward	CGCAGTGATTGTTACCGGTG
	Reverse	GGTAACCTTCGCACCTTCGA
Ndk	Forward	ACCCTGTCCATCATCAAGCC
	Reverse	GAACGGACGCTCTTTGTGC
phzA2	Forward	ACTGGGAGTGGCACAACG
	Reverse	GCAATTTCTGCATCGGGTT
phzB1	Forward	ACGGCTGTGGCGGTTT
	Reverse	CCGTGACCGTCGCATT

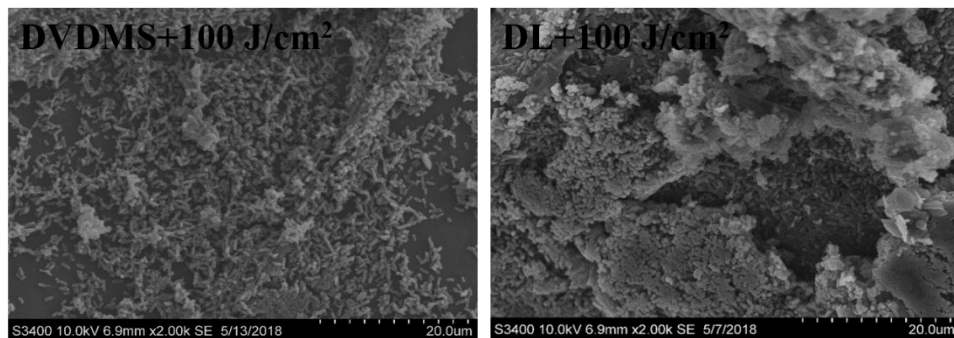


Fig. S5. SEM images of PACT-treated *P.aeruginosa* biofilms.

Table S4. Viscera weight of mice in each treatment group.

Groups	Heart (g)	Liver (g)	Spleen (g)	Lung (g)	Kidney (g)
Model	0.131 ± 0.031	1.174 ± 0.165	0.180 ± 0.026	0.129 ± 0.020	0.124 ± 0.003
DVDMS-PACT	0.120 ± 0.002	1.054 ± 0.049	0.149 ± 0.020	0.166 ± 0.020	0.111 ± 0.009
DL-PACT	0.131 ± 0.019	1.093 ± 0.098	0.142 ± 0.001	0.149 ± 0.005	0.127 ± 0.001
CDL2-PACT	0.138 ± 0.001	1.108 ± 0.149	0.119 ± 0.013	0.150 ± 0.027	0.127 ± 0.007