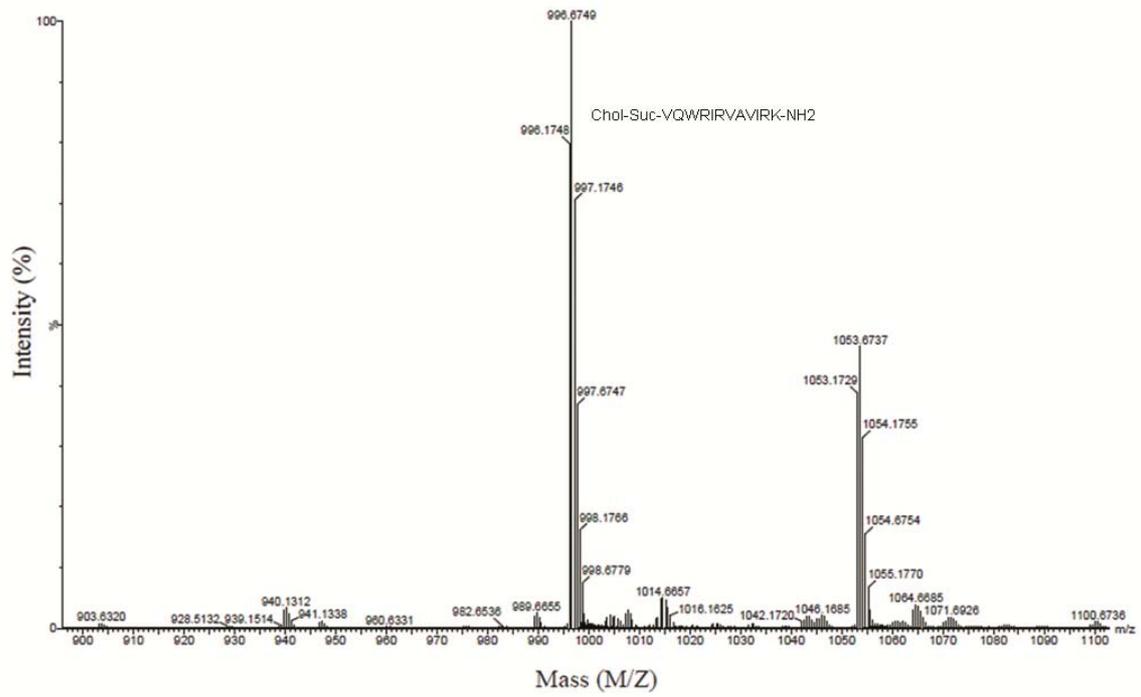
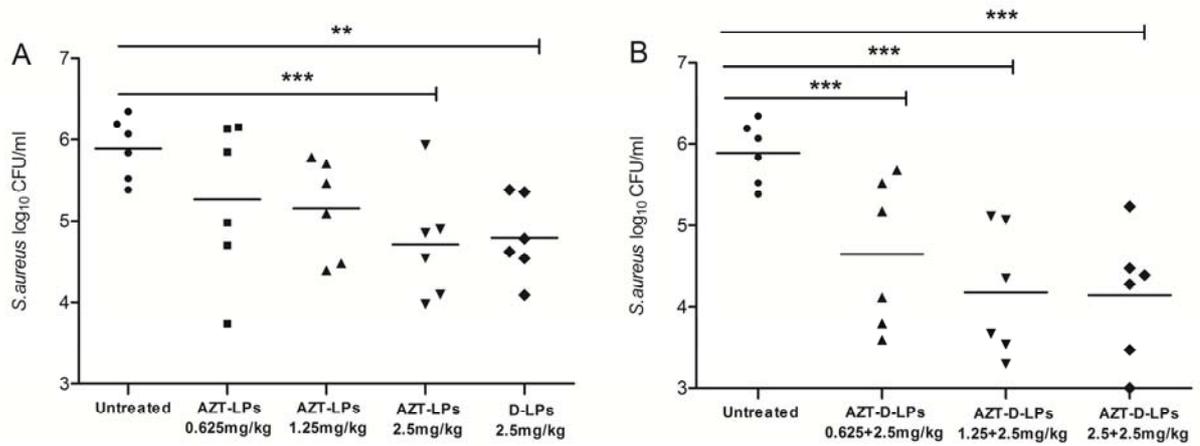


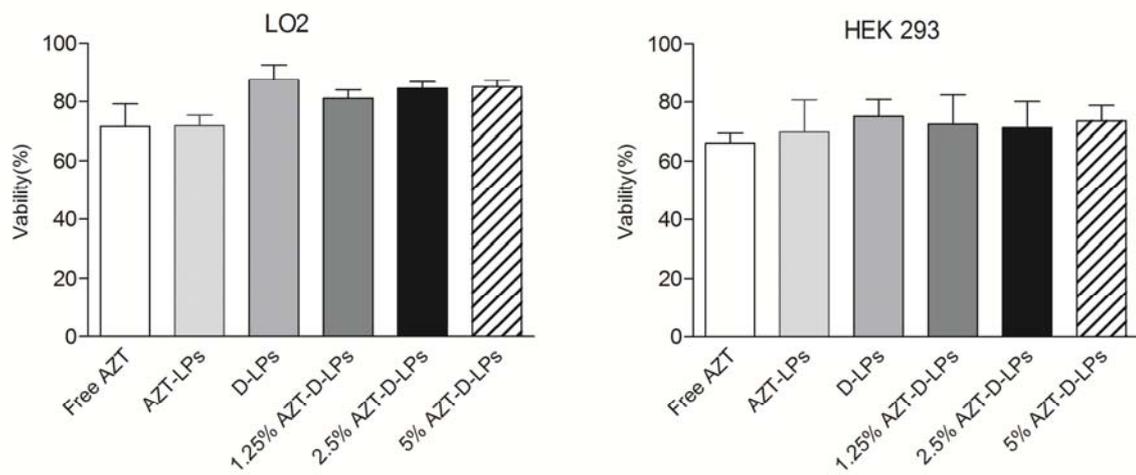
## Supplementary material



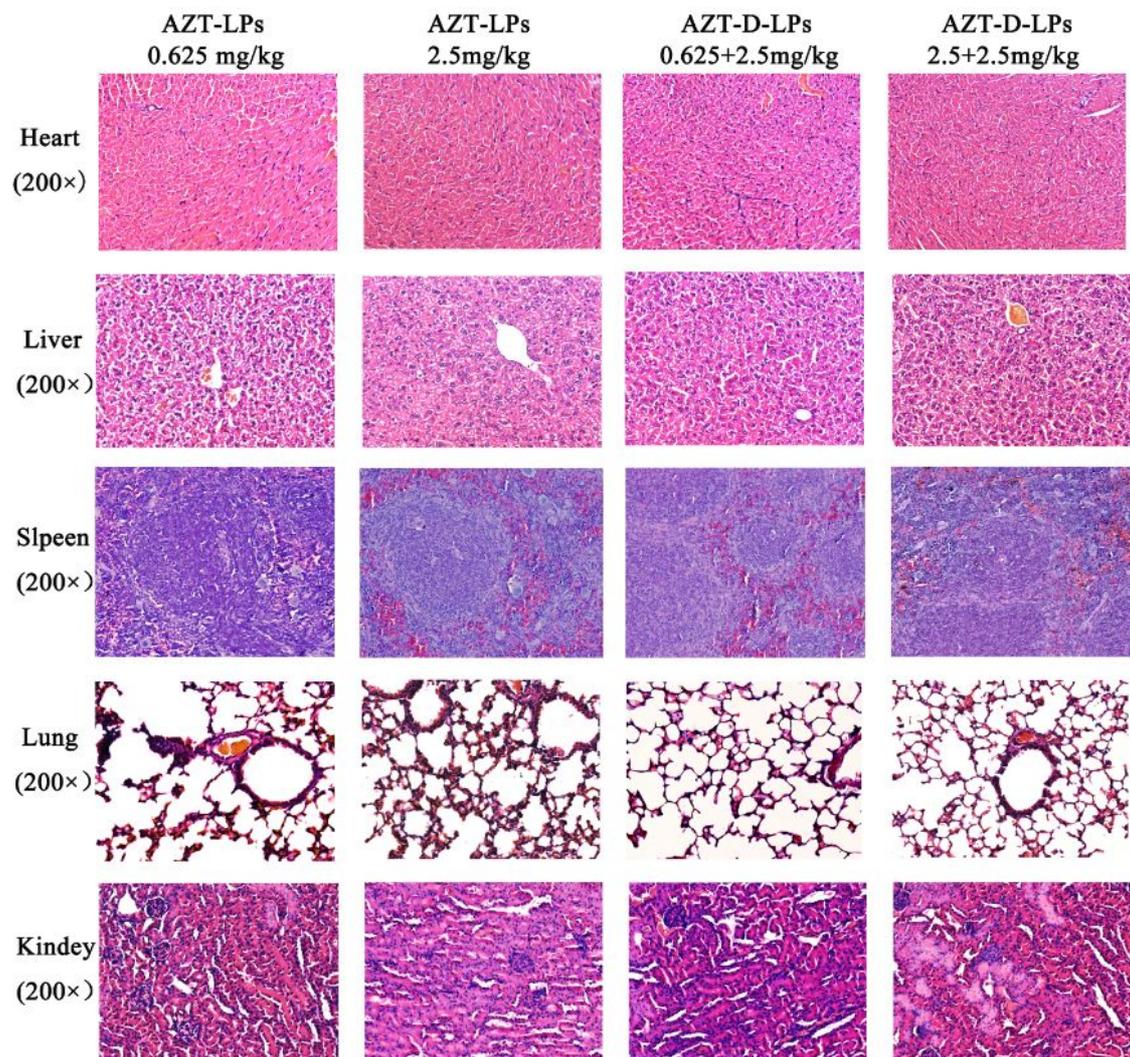
**Figure S1.** Mass spectrum and peptide sequence of DP7-C



**Figure S2.** Efficacy of DP7-C and/or AZT formulations in *S. aureus*-infected mouse model. BALB/c mice were infected with  $1 \times 10^8$  CFU/500 $\mu$ l *S. aureus* strain 33591 by i.p. injection, antimicrobial drug was administered 1 h after bacterial challenge. Different dose of AZT-LPs (0.625mg AZT/kg, 1.25mg AZT/kg, 2.5mg AZT /kg), D-LPs (2.5mg DP7-C/kg) and AZT-D-LPs (0.625mg AZT/kg+ 2.5mg DP7-C/kg, 1.25mg AZT/kg+ 2.5mg DP7-C/kg, 2.5mg AZT/kg+ 2.5mg DP7-C/kg) were administered by i.v. injection. Mice were sacrificed 24h later and the number of bacterial in the peritoneal lavage fluid was counted. (\* $P < 0.05$ , \*\* $P < 0.01$  and \*\*\* $P < 0.001$  versus the untreated group, respectively).



**Figure S3.** The cytotoxicity study of different AZT and/or DP7-C formulations on LO2 and HEK293 cells (n=3, mean  $\pm$  SD). Note: Free AZT: 250 $\mu$ g AZT/ml, AZT-LPs: 250 $\mu$ g AZT/ml, D-LPs: 250 $\mu$ g DP7-C/ml, 1.25%AZT-D-LPs: 250 $\mu$ g DP7-C/ml+62.5 $\mu$ g AZT/ml, 2.5%AZT-D-LPs: 250 $\mu$ g DP7-C/ml+125 $\mu$ g AZT/ml, 5%AZT-D-LPs: 250 $\mu$ g DP7-C/ml+250 $\mu$ g AZT/ml.



**Figure S4.** Histological analysis of the main organs of BALB/c mice after treatment with AZT-LPs (0.625mg AZT/kg or 2.5mg AZT /kg) and AZT-D-LPs (0.625mg AZT/kg+ 2.5mg DP7-C/kg or 2.5mg AZT/kg+ 2.5mg DP7-C/kg) formulations.

**Table S1.** Sequences of primers (human) used for quantitative real-time PCR.

Gene	Forward primer (5'-3')	Reverse Primer (5'-3')
GAPDH	TGAAGGACTCATGACCACA	TTCAGCTCAGGGATGACCTT
IL-1 $\beta$	CAGATGAAGTGCTCCTTCCA	ACCAGCATCTTCCTCAGCTT
IL-6	AATGAGGAGACTTGCCTGGT	GCAGGAACTGGATCAGGACT
IL-8	GACCACACTGCGCCAACAC	CTTCTCCACAACCCTCTGCAC
IL-10	GGTTGCCAAGCCTTGTCTGA	AGGGAGTTCACATGCGCCT
MCP-1	GTGTCCCAAAGAAGCTGTGA	AATCCTGAACCCACTTCTGC
TNF- $\alpha$	TGGAGAAGGGTGACCGACTC	TCCTCACAGGGCAATGATCC
IFN- $\gamma$	TGTTACTGCCAGGACCCATA	TTCTGTCACTCTCCTCTTTCCA
G-CSF	CAGAGCTTCCTGCTCAAGTG	GCACACTCACTCACCAGCTT

**Table S2.** Sequences of primers (mouse) used for quantitative real-time PCR.

Gene	Forward primer (5'-3')	Reverse Primer (5'-3')
$\beta$ -actin	CCCAGGCATTGCTGACAGG	TGGAAGGTGGACAGTGAGGC
IL-1 $\beta$	GCAACTGTTCCCTGAACTCAACT	ATCTTTTGGGGTCCGTCAACT
IL-2	TCACCAGGATGCTCACATT	GCACTTCCTCCAGAGGTTTG
MCP-1	AAAACCTGGATCGGAACCAAAT	AGACCTTAGGGCAGATGCAGTT
TNF- $\alpha$	TCTTCTCATTCCCTGCTTGTGG	GGTCTGGGCCATAGAACTGA

**Table S3.** Properties of AZT-LPs and AZT-D-LPs

Groups	Formulations	Encapsulation efficiency of AZT (%)	Mean size (nm)	Polydispersity index (PDI)	Zeta potential (mV)
Non-modified AZT loaded liposome	1.25%AZT-LPs	99.95%±1.68%	96.07±0.18	0.24±0.01	-0.45±0.92
	2.5%AZT-LPs	99.26%±1.97%	99.60±1.82	0.25±0.01	-1.71±0.64
	5% AZT-LPs	98.62%±2.21%	97.11±0.53	0.24±0.01	-0.31±0.99
	10% AZT-LPs	98.88%±1.10%	98.98±0.43	0.27±0.01	-0.46±0.09
DP7-C modified AZT loaded liposome	1.25% AZT-D-LPs	97.88%±1.52%	100.75±0.49	0.23±0.01	3.72±0.28
	2.5% AZT-D-LPs	98.10%±2.37%	103.80±1.84	0.24±0.01	4.95±0.32
	5% AZT-D-LPs	97.22%±1.21%	102.97±0.92	0.27±0.01	5.26±0.98
	10% AZT-D-LPs	97.65%±0.81%	106.30±1.12	0.28±0.01	4.98±0.45

Note: D: DP7-C; AZT: azithromycin; and LPs: liposomes. Data are shown as mean ± SD (n=3).

**Table S4.** Blood cells analysis in BALB/c mice after treatment with different AZT and/or DP7-C formulations (DP7-C dosage of 2.5mg/kg and AZT dosage of 1.25mg/kg).

Groups	Untreated	AZT-LPs	D-LPs	AZT-D-LPs
WBC(K/ $\mu$ L)	4.96 $\pm$ 0.83	6.40 $\pm$ 1.31	7.00 $\pm$ 1.45	6.16 $\pm$ 0.68
RBC(M/ $\mu$ L)	9.51 $\pm$ 1.26	9.99 $\pm$ 1.03	9.93 $\pm$ 0.61	10.88 $\pm$ 0.50
HGB(g/dL)	169.00 $\pm$ 20.87	176.00 $\pm$ 19.89	175.00 $\pm$ 13.55	191.40 $\pm$ 8.35
PLT(K/ $\mu$ L)	141.75 $\pm$ 44.25	356.20 $\pm$ 102.16	206.00 $\pm$ 76.21	207.00 $\pm$ 71.02

Note: WBC, white blood cell; RBC, red blood cell; HGB, hemoglobin; PLT, platelet;

**Table S5.** Serological and biochemical analysis for BALB/c mice after treatment with different AZT and/or DP7-C formulations (DP7-C dosage of 2.5mg/kg, AZT dosage of 1.25mg/kg).

Groups	Untreated	AZT-LPs	D-LPs	AZT-D-LPs
ALT (U/L)	55.2±11.95	40.5±10.63	43.4±6.80	69.5±13.77
AST (U/L)	104.2±11.17	103.8±28.93	112.8±20.91	124.2±17.96
ALP (U/L)	149.2±1.77	166.4±14.43	166.2±11.95	162±11.38
LDH (U/L)	567.8±73.95	605.2±55.21	702±91.37	718±99.80
CK (U/L)	475±138.87	448±31.15	532.00±190.21	511.2±113.98
CREA (µM)	1.8±0.45	2±1.00	2.6±1.52	2.6±0.55
BUN (m M)	5.96±0.44	6.6±0.70	6.62±1.29	6.66±0.73
UA (µM)	50.4±7.06	55±6.16	54.25±4.86	54.8±5.02
TP (g/L)	52.04±1.93	53.84±1.56	54.84±4.05	53.3±2.33
ALB (g/L)	30.86±1.13	33.18±1.12	33.02±2.15	32.36±0.90
GLU (m M)	7.86±0.60	8.30±0.39	7.146±0.90	8.41±0.57
CHO (m M)	2.58±0.24	2.55±0.19	2.55±0.31	2.46±0.24
TG (m M)	4.666±2.31	5.31±1.79	5.71±1.80	4.85±1.32
HDL (m M)	0.94±0.13	0.97±0.10	0.94±0.14	0.96±0.12
LDL (m M)	0.07±0.01	0.06±0.01	0.06±0.01	0.07±0.01

Note: ALT, aspartate transaminase; AST, aspartate aminotransferase; ALP, alkaline phosphatase; LDH, lactate dehydrogenase; CK, creatine kinase; BUN, urea nitrogen; Crea, creatinine; UA, uric acid; TP, total protein; ALB, albumin; GLU, glucose; TC, total cholesterol; LDL, low density lipoprotein-cholesterol; HDL, high density lipoprotein-cholesterol; TG, triglycerides;