Supplementary information

Development of Polycationic Micelles as an Efficient Delivery System of Antibiotics Overcoming Biological Barriers to Reverse Multidrug Resistance in *Escherichia coli*

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1. Hemolysis test

A 1% (v/v) solution of erythrocyte was firstly prepared. Then, a total of 200 μL rRBC solution was incubated with 200 μL PLA-PEG-PEI (with a final lipid concentration of 4 ~ 1024 μg/mL) at 37ºC for 2 h and then centrifuged at 1000 g at 4ºC for 5 min. The supernatant was transferred to 96-well plates, and the optical density at 576 nm was measured using a Synergy H1 hybrid multi-mode microplate reader (BioTek Instruments, Inc., USA) to monitor the release of hemoglobin. The negative and positive controls were rRBCs in saline and 0.5% Triton X-100, respectively. The release of hemolysis was measured using Equation (1):

$$\text{Hemolysis (\%)} = \left[\left(OD_t - OD_0\right)/\left(OD_{100} - OD_0\right)\right] \times 100\% \quad (1)$$

Where OD_t is the absorption of erythrocyte in C-LS at the concentration of t, OD_0 is the absorption of erythrocyte in PBS, and OD_{100} is the absorption of erythrocyte in 0.5% Triton X-100.

2. Results

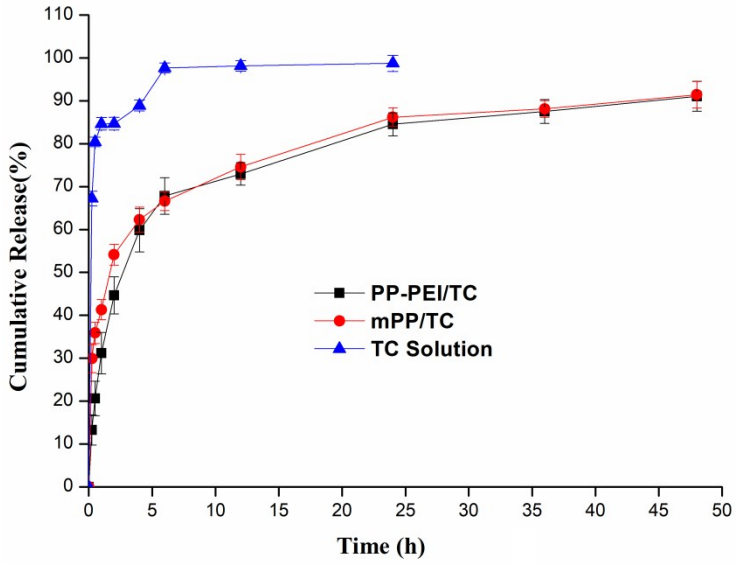

Fig. S1 Cumulative release of TC from PP-PEI/TC and mPP/TC as a function of time at 37ºC. The concentration of the copolymer was 9 mg/mL (mean±SD, n=6).

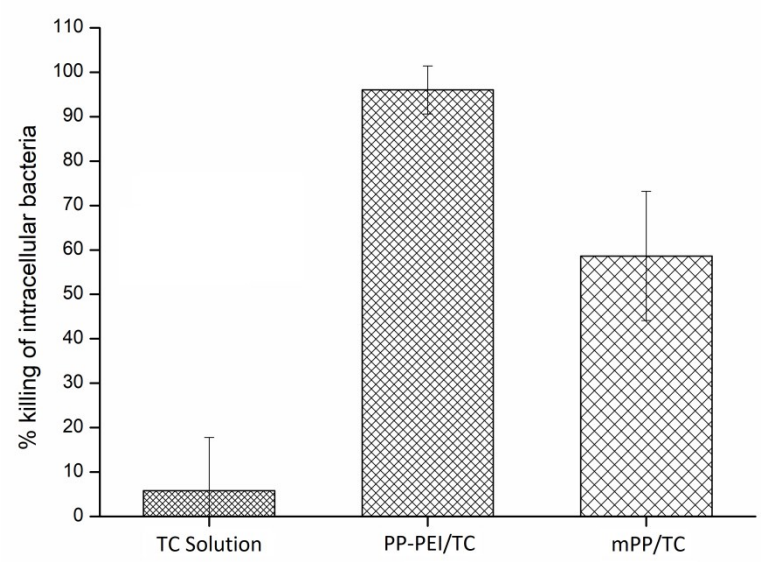

Fig. S2 Killing of intracellular *E.coli* EB1-1 by encapsulated RAW264.7 cells infected with bacteria were incubated with free or encapsulated TC formulations at a drug dose of 4 μg/mL for 8 h. The cells were lysed and the lysate was plated on growth medium for 12 h. The bacterial colonies were counted, and the result was expressed as percent killing compared to that for untreated control cells. Representative assay results are presented here. Each result represents the mean of triplicate assays performed together. Error bars indicate standard deviations.

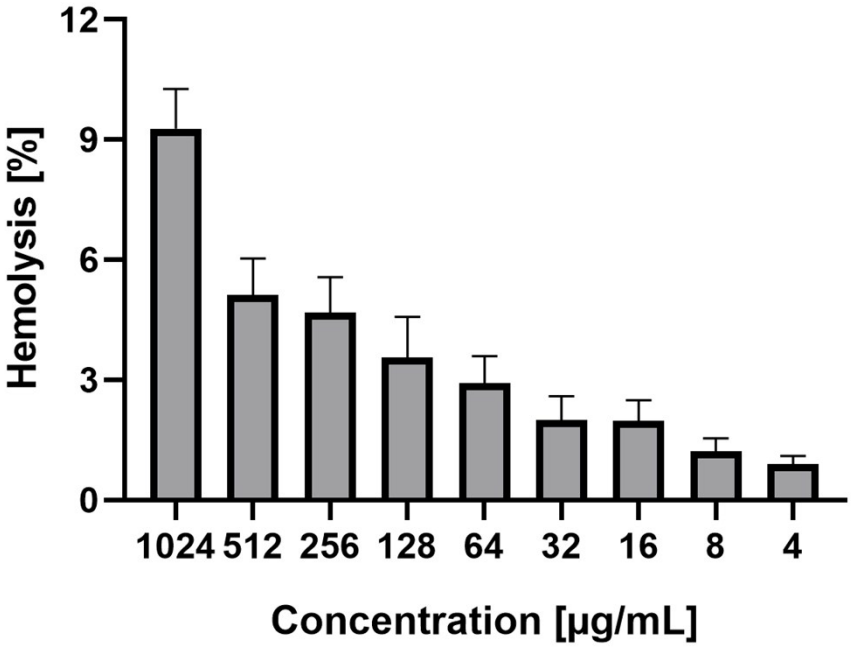

Fig. S3. Hemolysis behavior of PLA-PEG-PEI copolymer as a function of concentration (μg/mL).