

Broad-spectrum antimicrobial activity and improved stability of a D-amino acid enantiomer of DMPC-10A, the designed derivative of dermaseptin truncates

Supplementary Materials

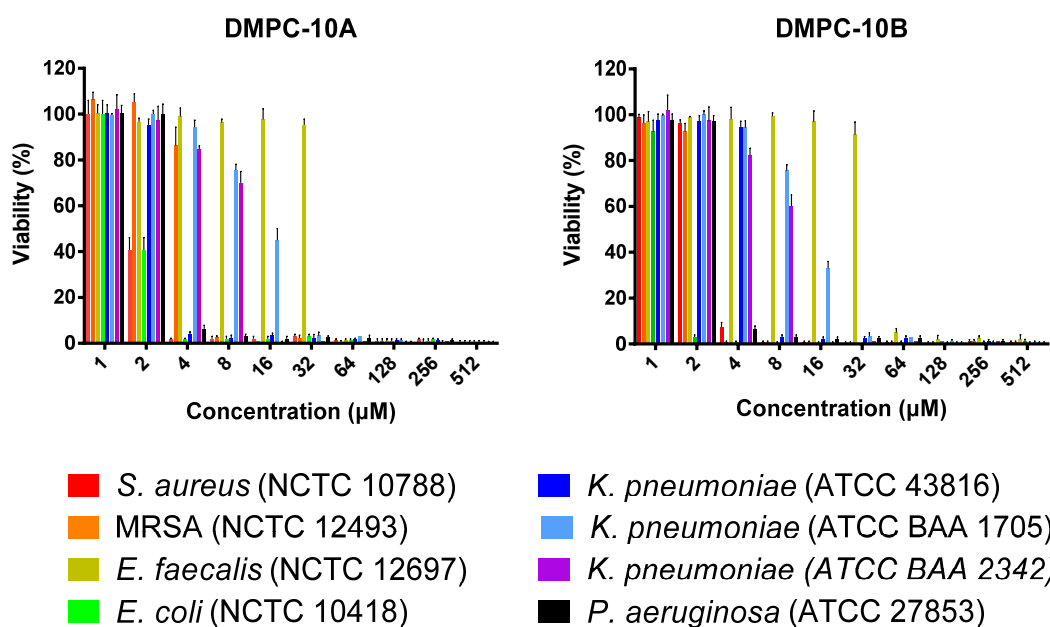
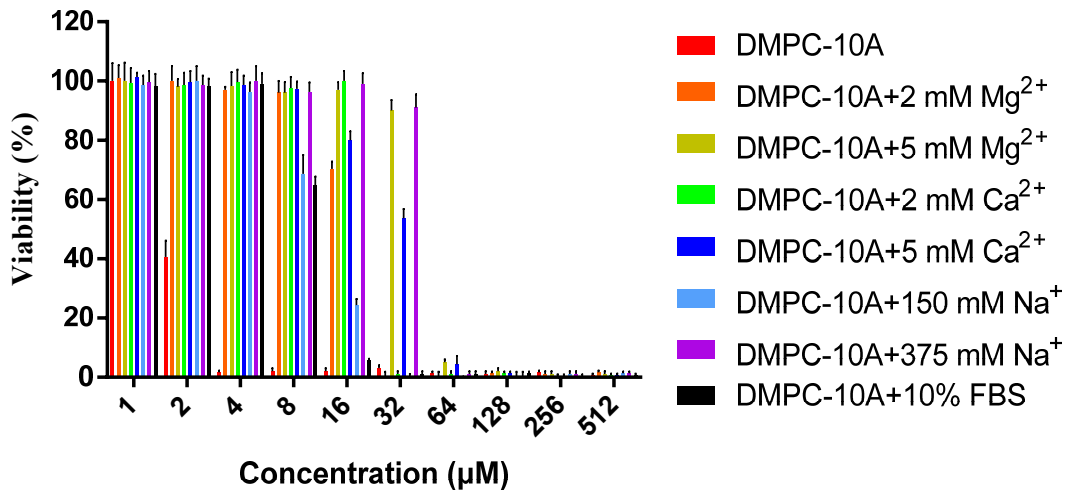
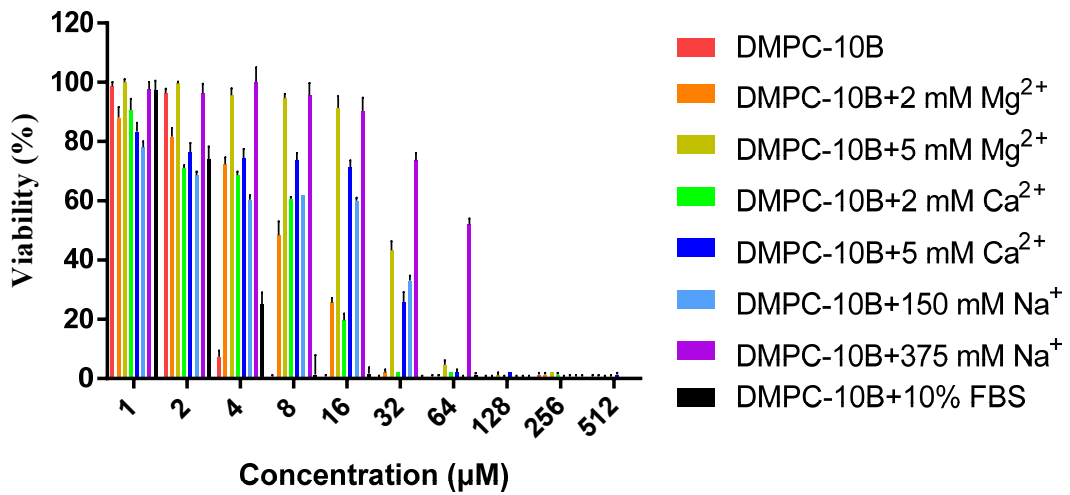


Figure S1. The cell viability of tested microorganism in the treatment of DMPC-10A and DMPC-10B at the concentration from 512 to 1 μM. The error bar represents the standard deviation (SD) of 15 replicates in three tests (5 replicates for each).

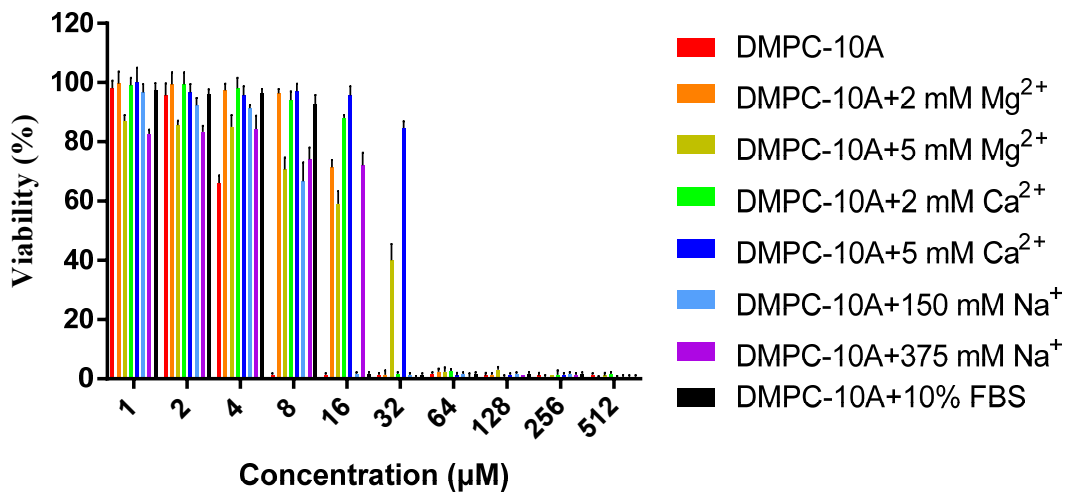
S. aureus



S. aureus



E. coli



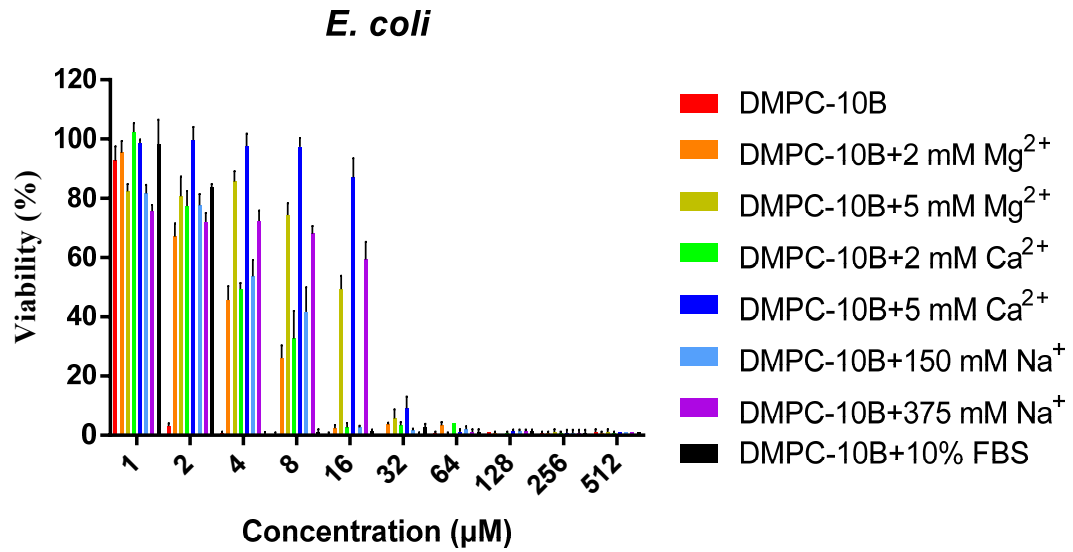
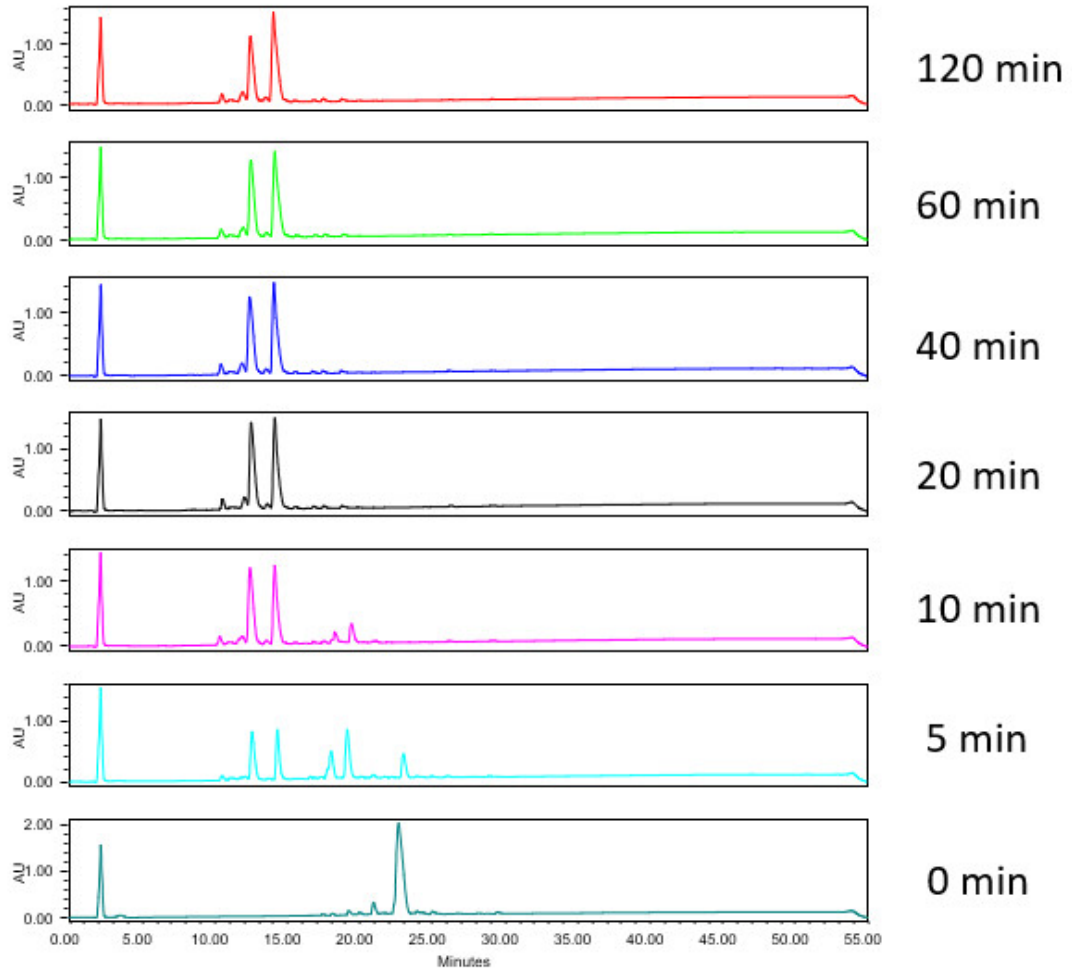
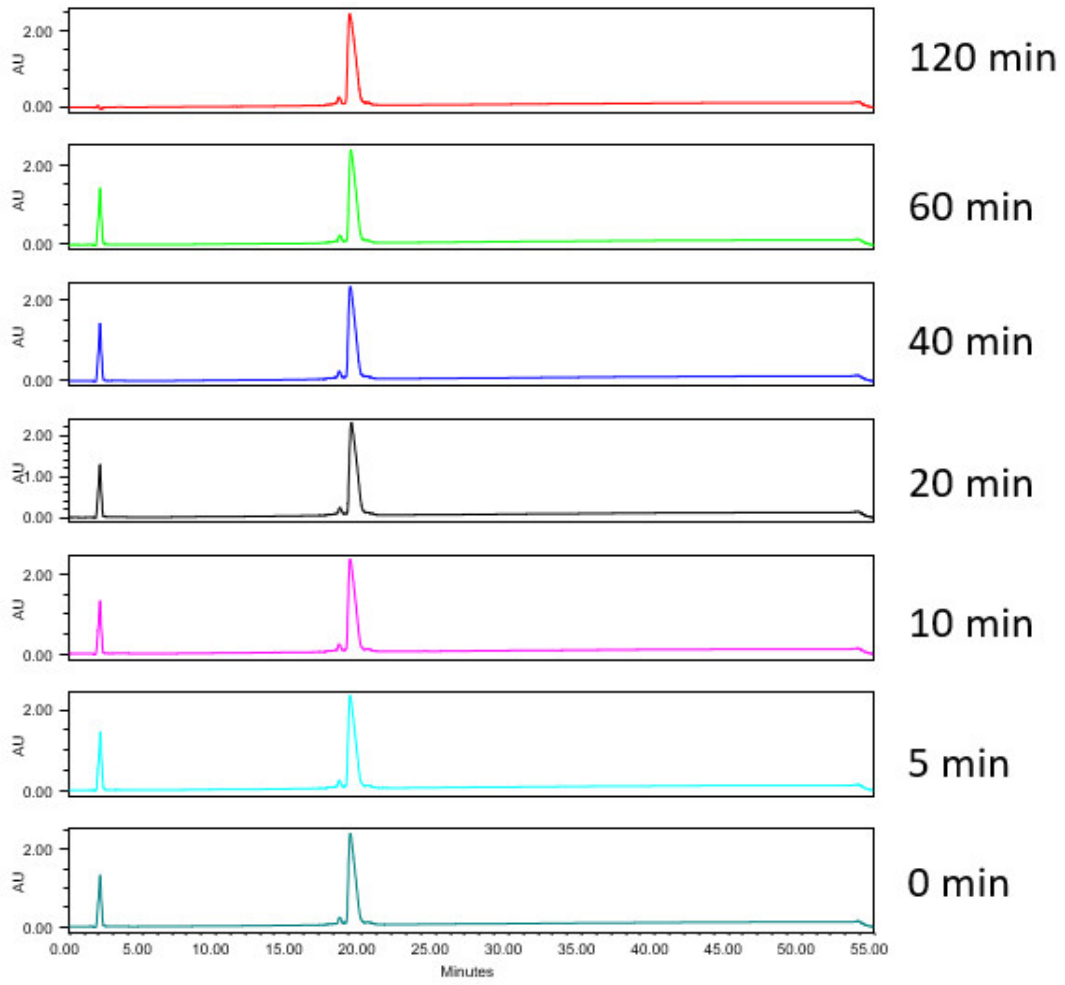


Figure S2. The cell viability of *S. aureus* (NCTC 10788) and *E. coli* (NCTC 10418) in the treatment of DMPC-10A and DMPC-10B at the concentration from 512 to 1 μM with the presence of the different concentrations of the cations, including MgCl₂, CaCl₂, NaCl, and 10% FBS. The error bar represents the standard deviation (SD) of 15 replicates in three tests (5 replicates for each).

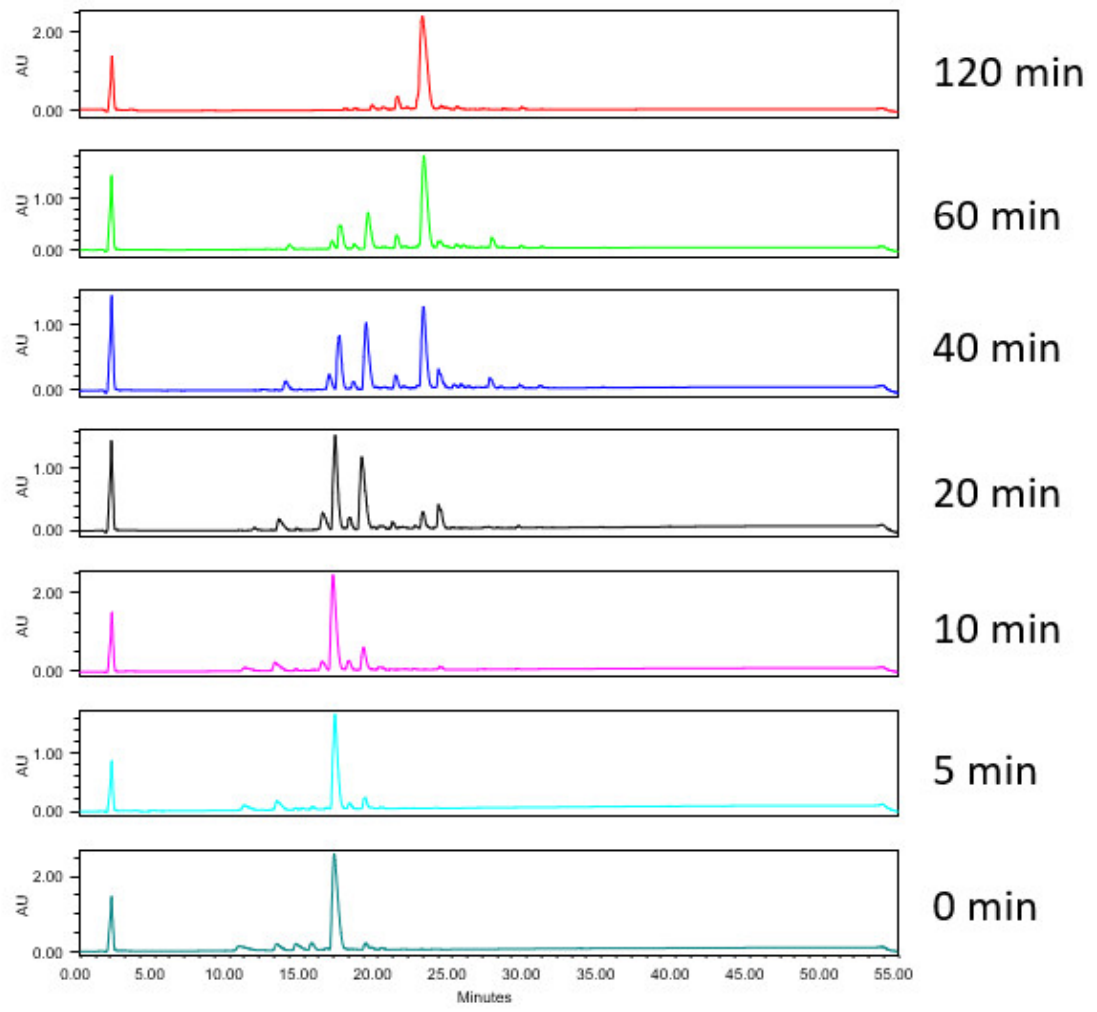
Trypsin+DMPC-10A



Trypsin+DMPC-10B



Chymotrypsin+DMPC-10A



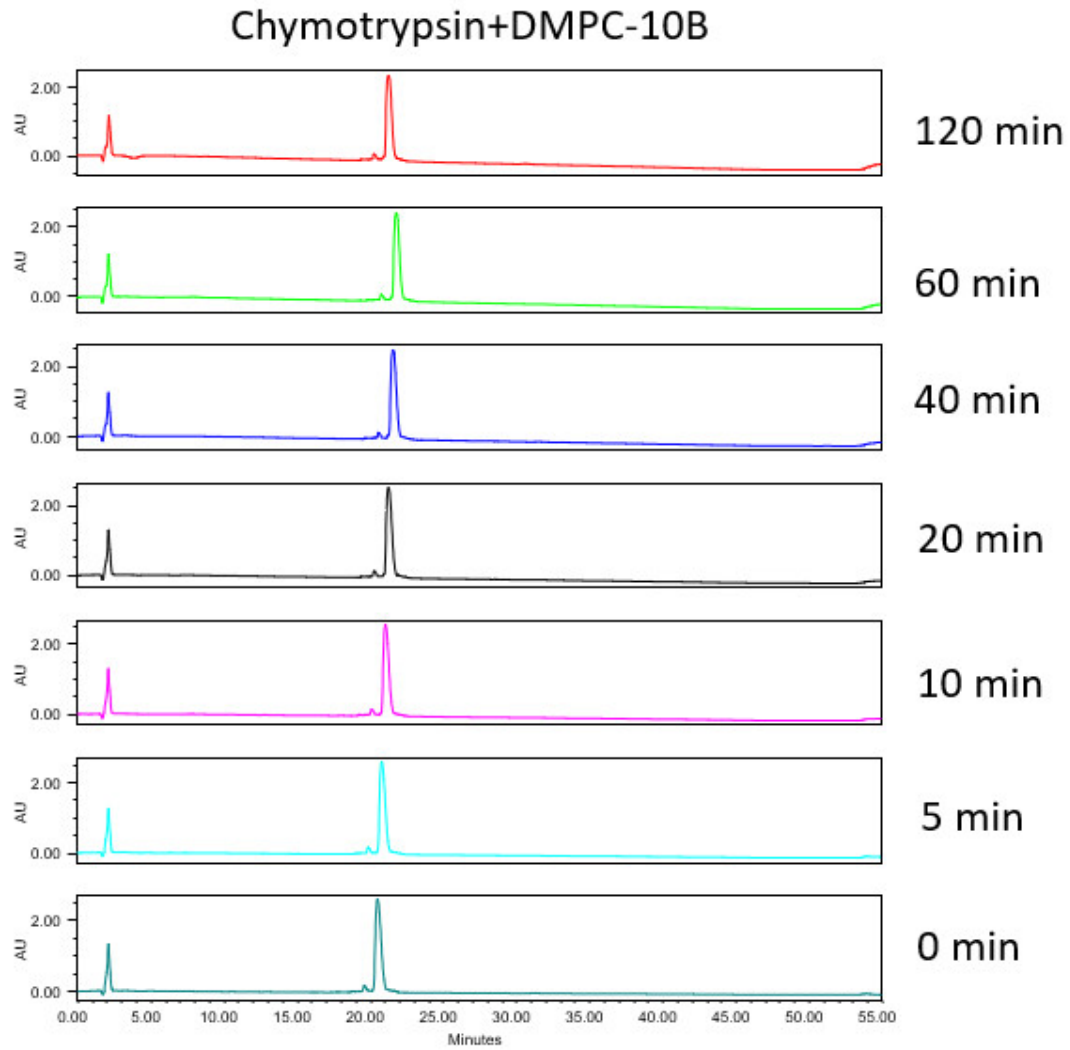


Figure S3. Reverse phase HPLC chromatograms of 100 μ l 1mg/mL peptide solution treated with 1% (m/m) trypsin and chymotrypsin within 120 minutes. Ten percent of 10% trifluoroacetic acid was used to stop the reaction between enzyme and peptides. 0 min was the sample only contained peptide solution and 10% trifluoroacetic acid.

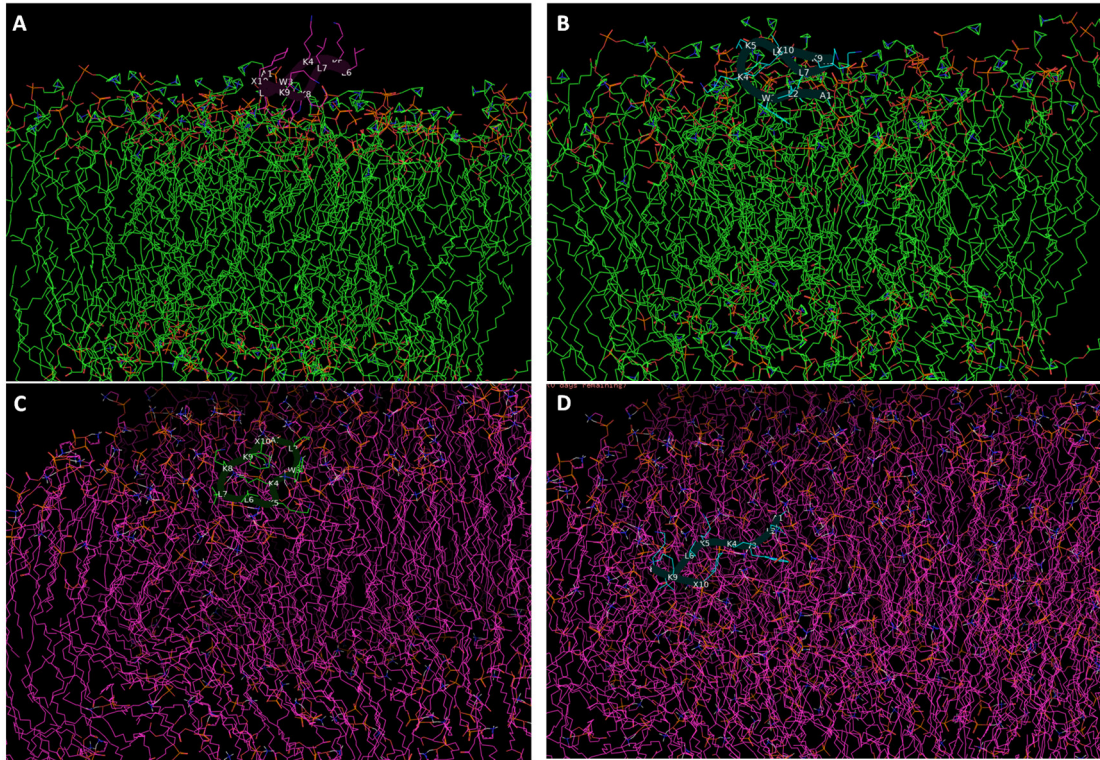
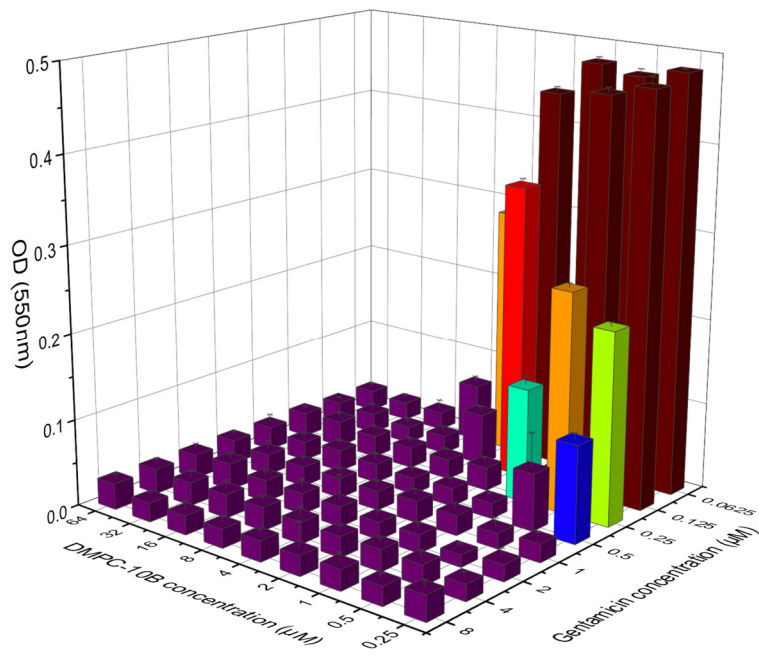
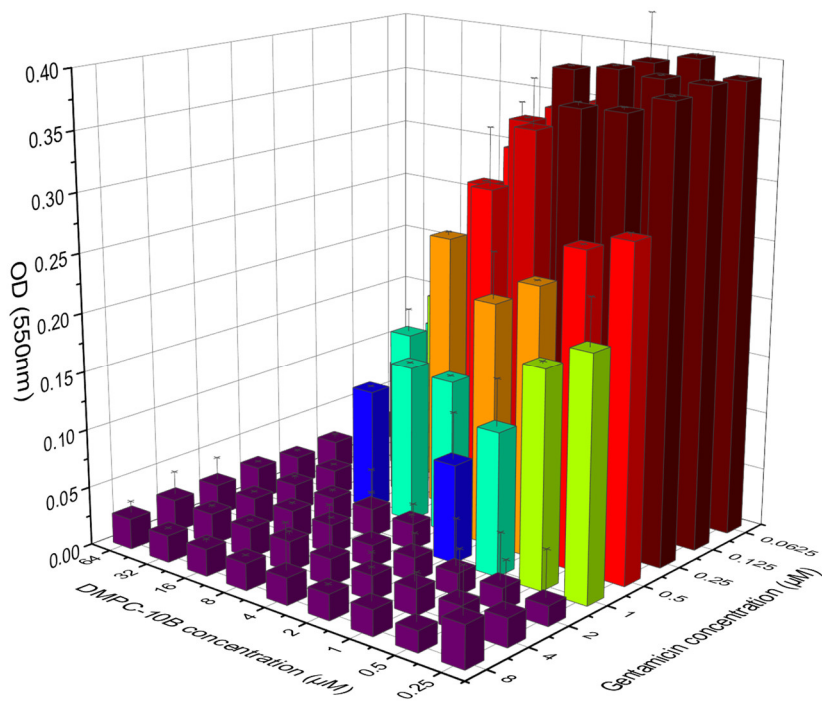


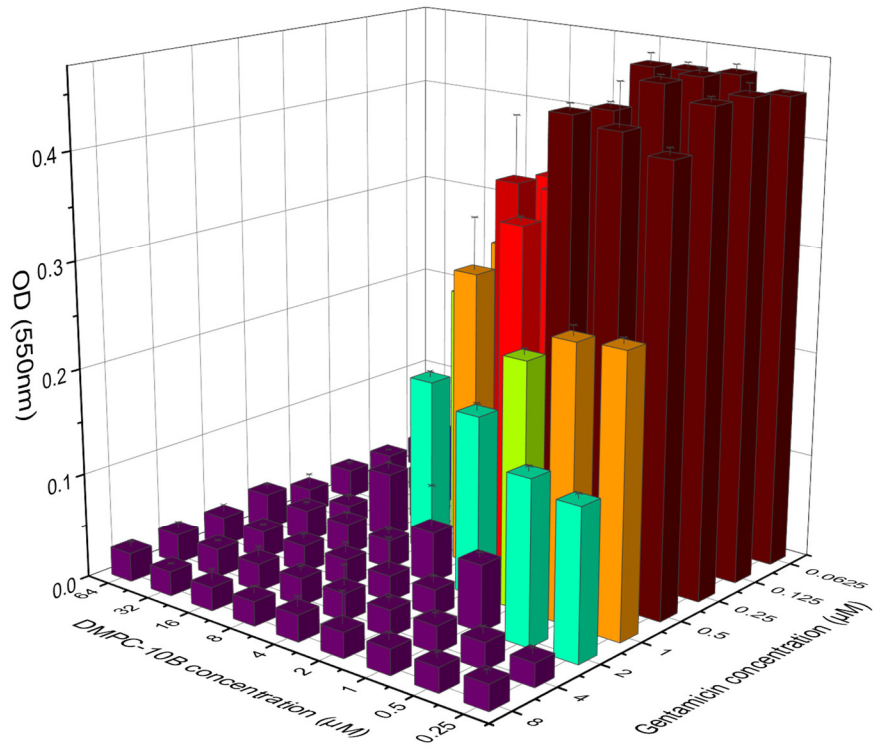
Figure S4. Molecular docking analysis of the interaction of DMPC-10A (A and C) and DMPC-10B (B and D) with POPC (A and B) and POPE (C and D) lipid bilayer. The calculated binding affinity is -3.4 kcal/mol (A), -3.4 kcal/mol (B), -3.9 kcal/mol (C) and -4.8 kcal/mol (D), respectively.



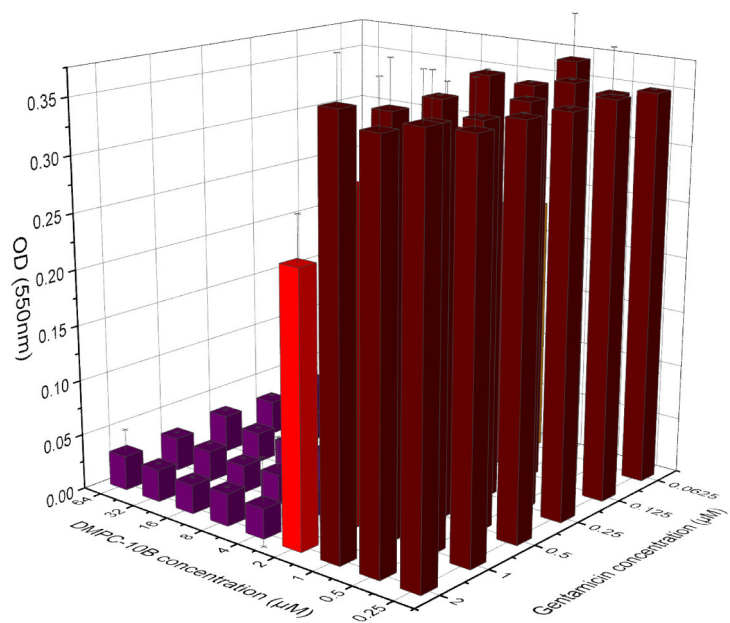
(a)



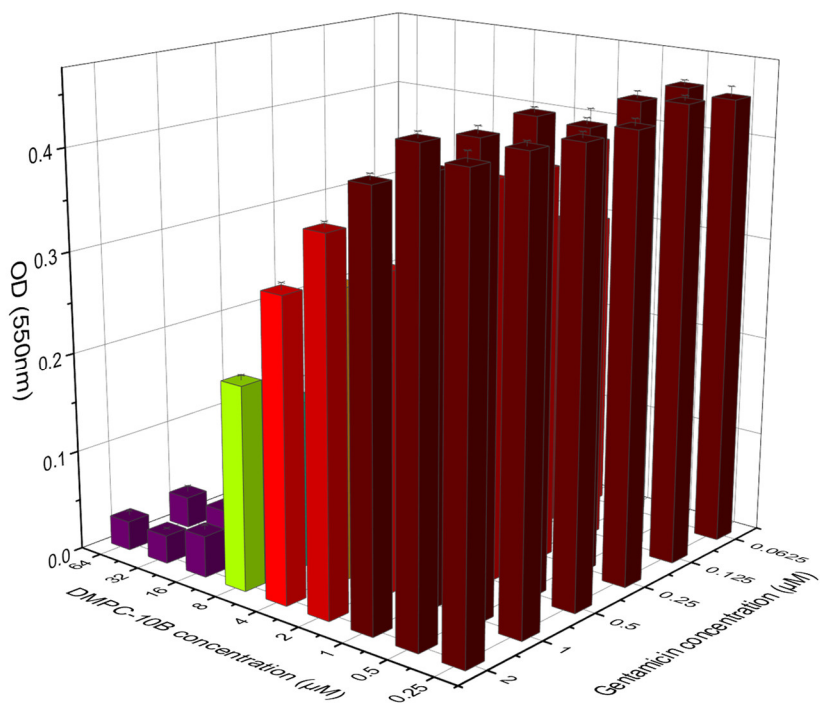
(b)



(d)



(e)



(f)

Figure S5. The turbidity of culture at OD 550nm in the treatment of the

combination of DMPC-10B and gentamicin (a, b, and c), or norfloxacin (d, e, and f) against *K. pneumoniae* (ATCC 43816) (a & d), *K. pneumoniae* (ATCC BAA 1705) (b & e) and *K. pneumoniae* (ATCC BAA 2342) (c & f). The error bar represents the standard deviation (SD) of 5 replicates.