Electronic Supplementary Information (ESI)

Synthesis of glycopolymers with specificity for bacterial strains via bacteria-guided polymerization

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Characterization of polymers by NMR and GPC

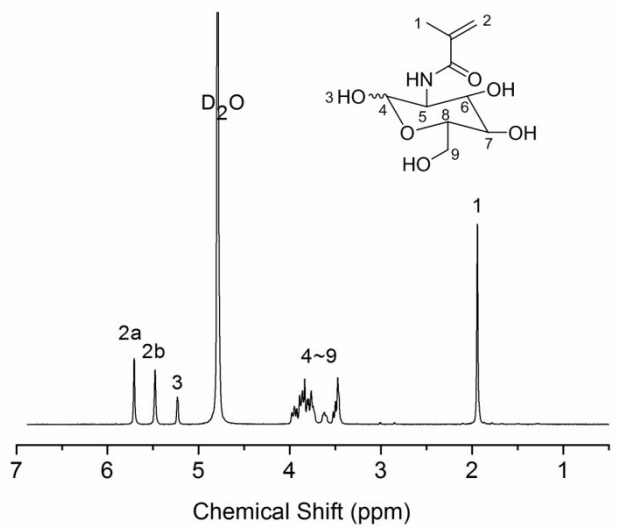

Figure S1 ^{1}H-NMR spectrum of MAG.

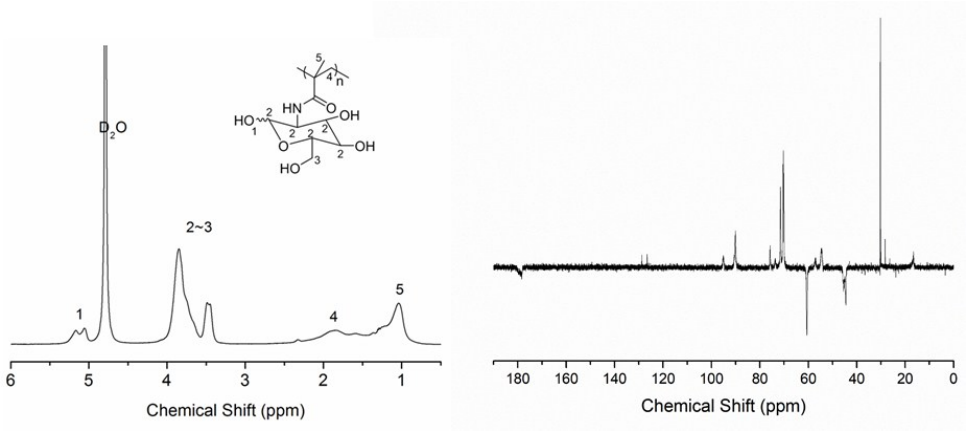

Figure S2 ^{1}H-NMR and ^{13}C-NMR spectrum of pMAG

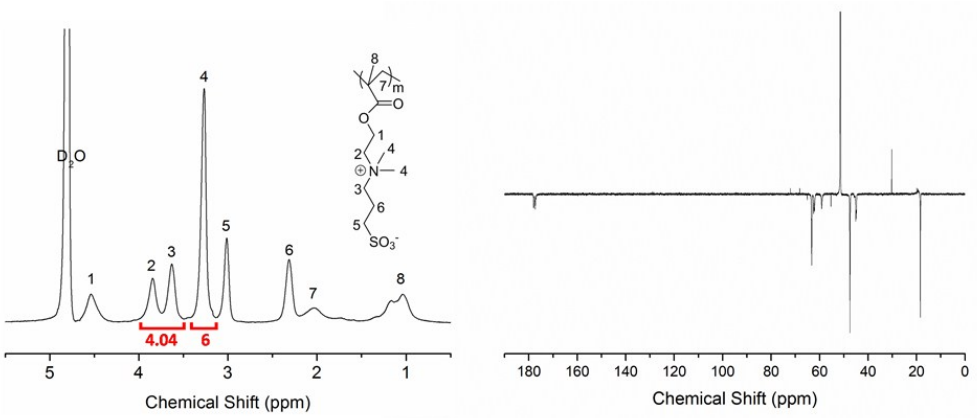

Figure S3 ^{1}H-NMR and ^{13}C-NMR spectrum of pMEDSA

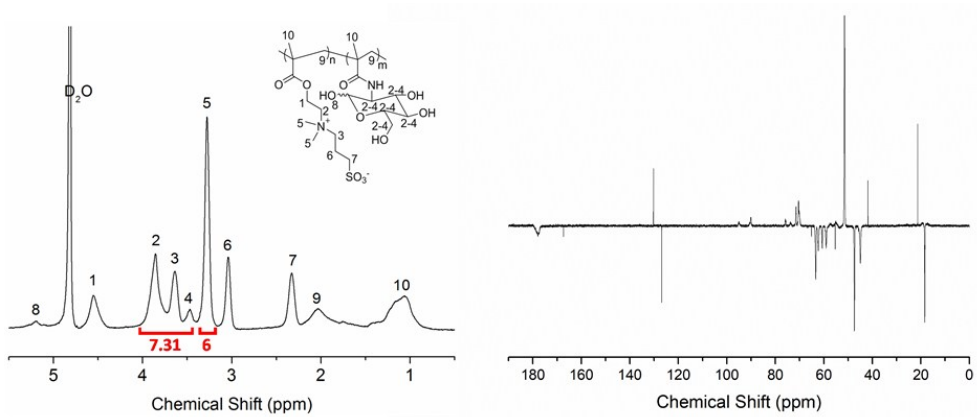

Figure S4 ^{1}H-NMR and ^{13}C-NMR spectrum of NP

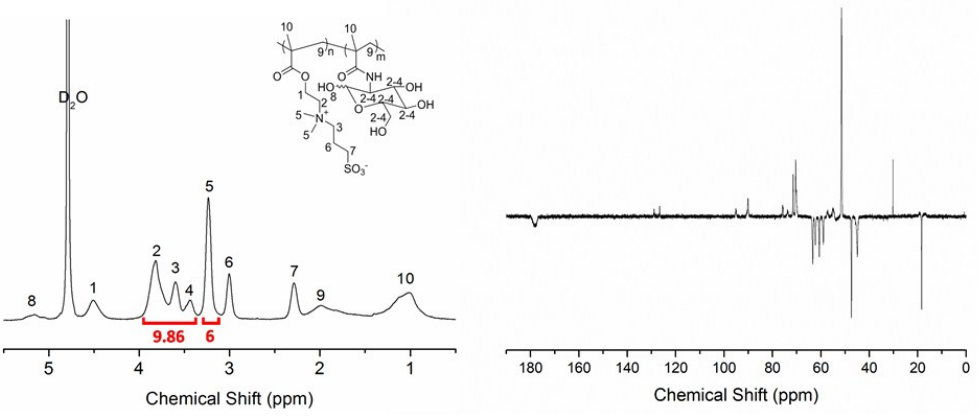

Figure S5 ^{1}H-NMR and ^{13}C-NMR spectrum of RP

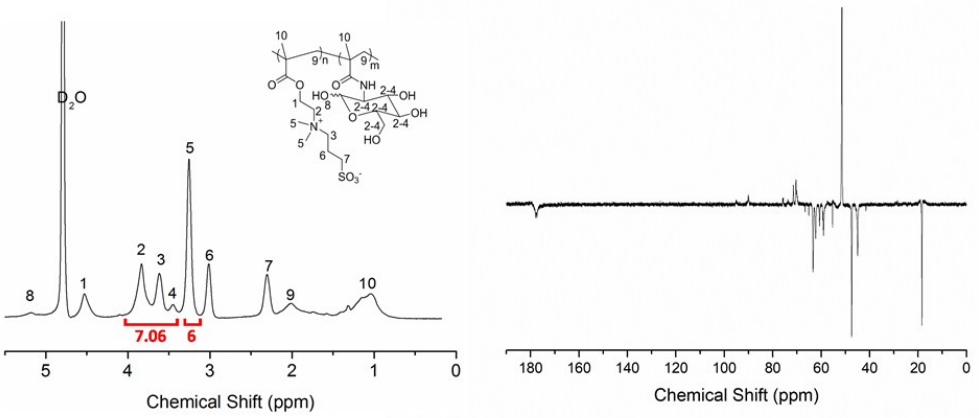

Figure S6 ^{1}H-NMR and ^{13}C-NMR spectrum of SP

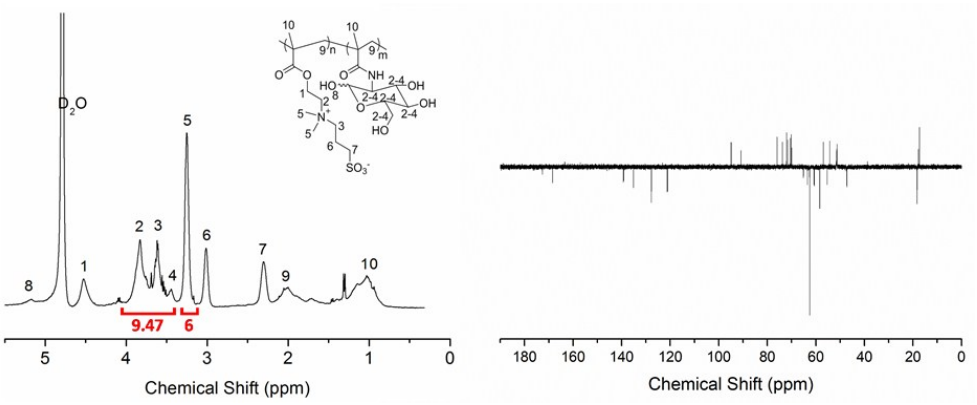

Figure S7 ^{1}H-NMR and ^{13}C-NMR spectrum of BP

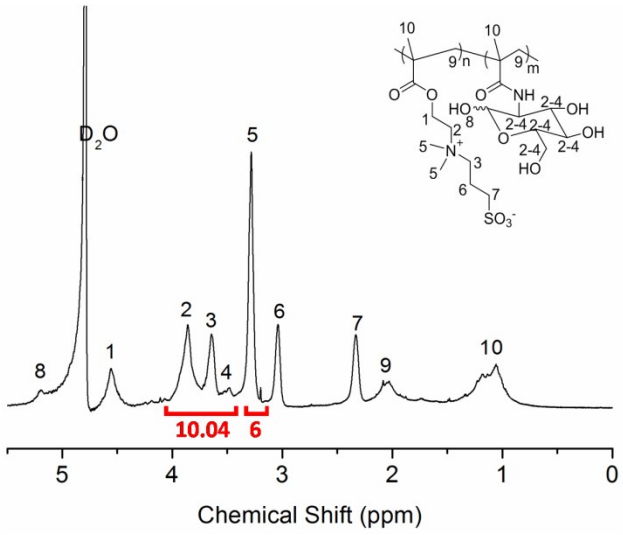

Figure S8 ^{1}H-NMR spectrum of SP2.

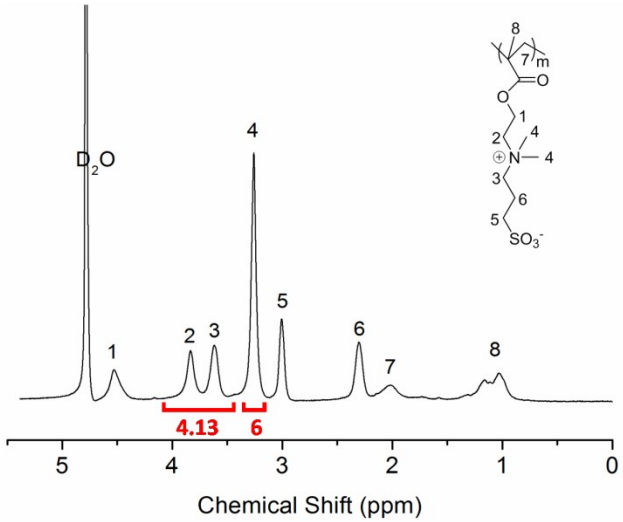

Figure S9 ^{1}H-NMR spectrum of BP2.

GPC measurements

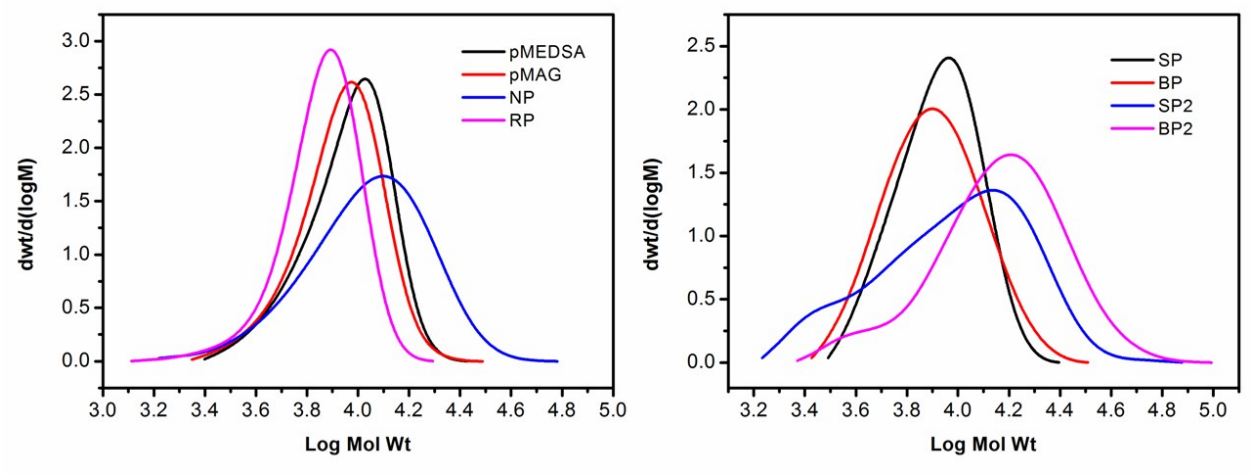

Figure S10 The GPC elution profiles of polymers.

Calculation of monomer composition of copolymers

The composition ratio was calculated by comparing the CH_3 (peak 5, Figure S3-S9) of quaternary amine which belong to MEDSA and protons (peak 2-4, Figure S3-S9) belonging to MAG and MEDSA (2~4, Figure S5). The results of calculation are shown in the Table S1.

Bacteria aggregation

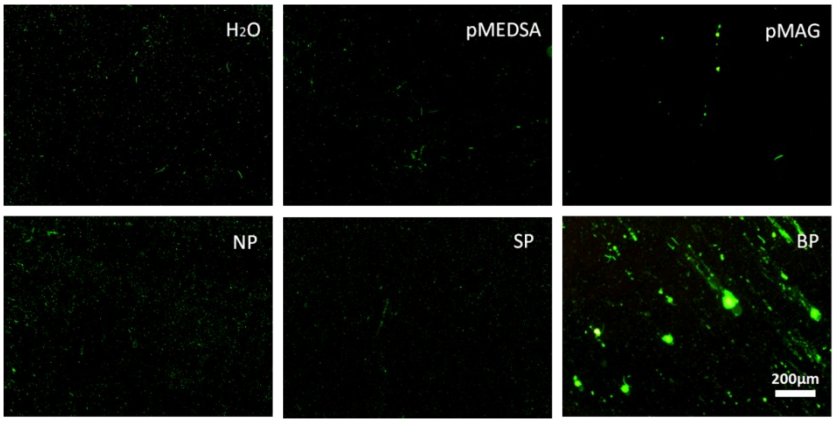

Figure S11 Template bacteria (*E.coli* MG1655) clusters by different treatment.

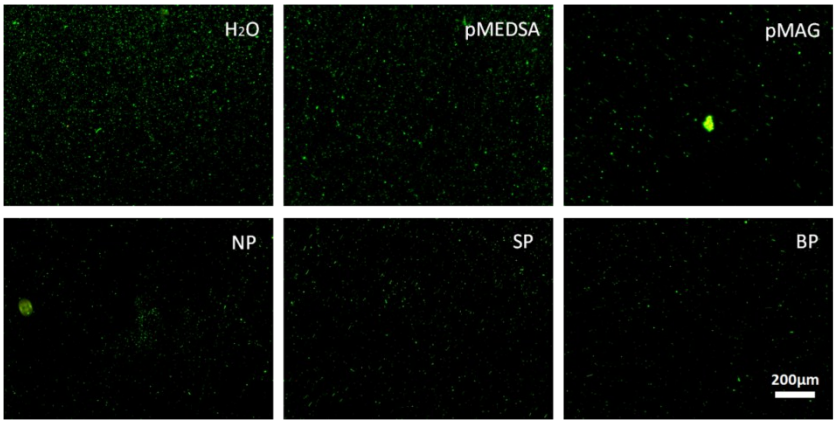

Figure S12 Non-template bacteria (*E.coli* DH5α) clusters by different treatment.

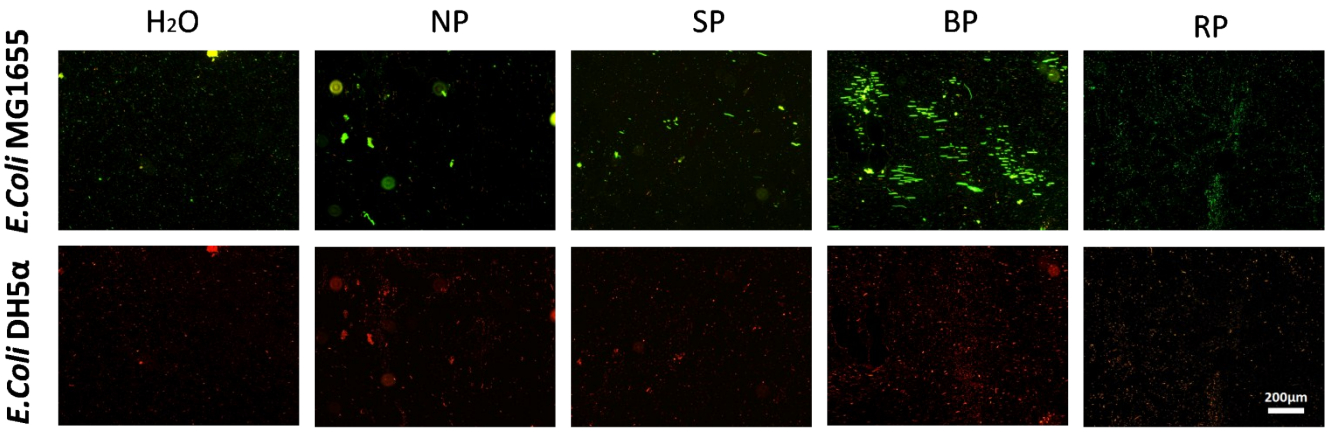

Figure S13 Both the two strains of bacteria clusters by different treatment in the mixed state.

QCM results

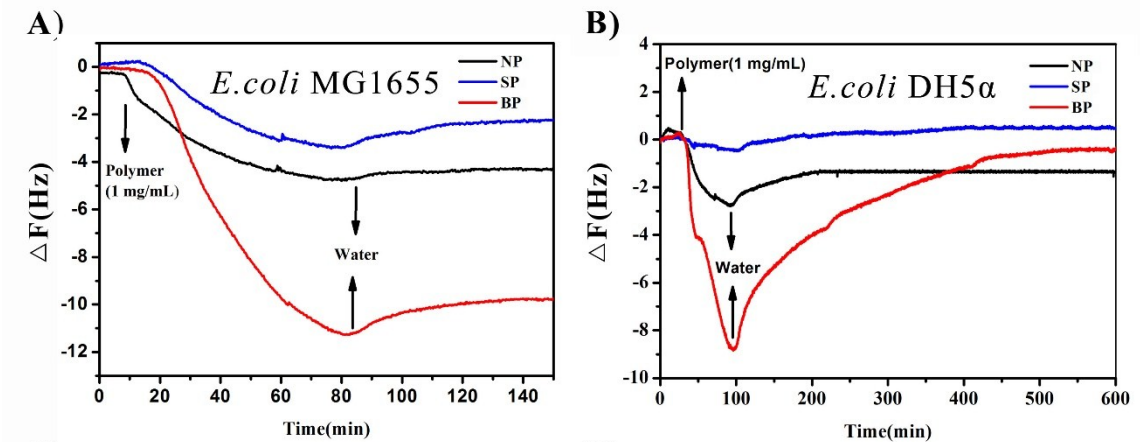

Figure S14 A) Frequency change with time of template bacteria layers on contact with the different polymer solutions (NP, SP, BP). B) Frequency change with time of non-template bacteria layers on contact with the different polymer solutions (NP, SP, BP)

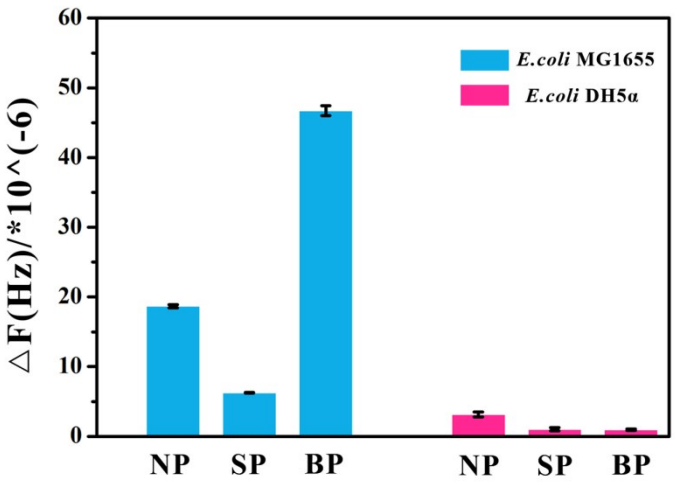

Figure S15 Final frequency change following the interaction between bacteria and polymers.

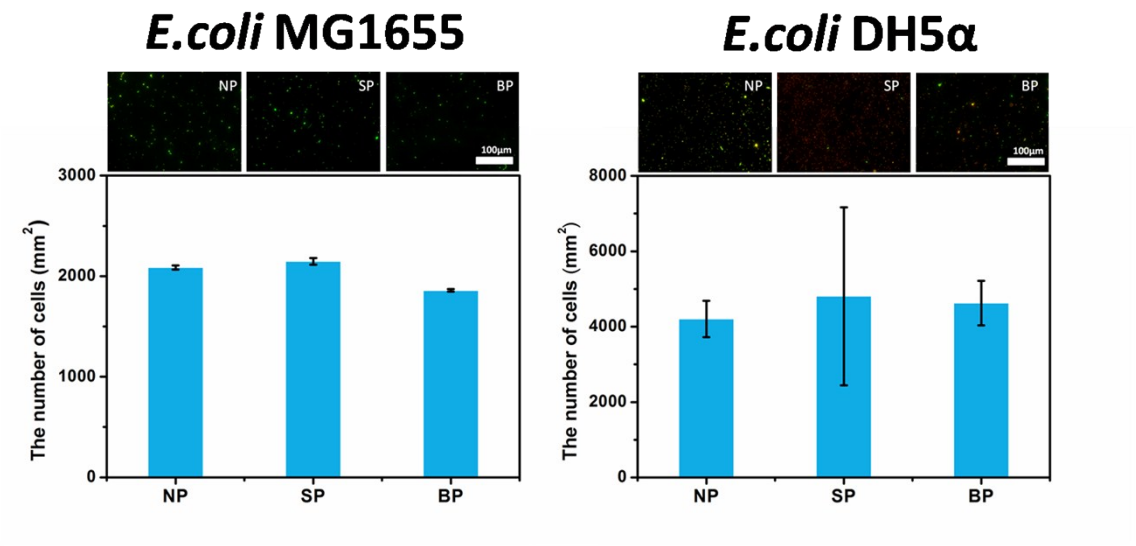

Figure S16 Number of bacteria adhered to the chips.

Bacterial aggregation by turbidimetry

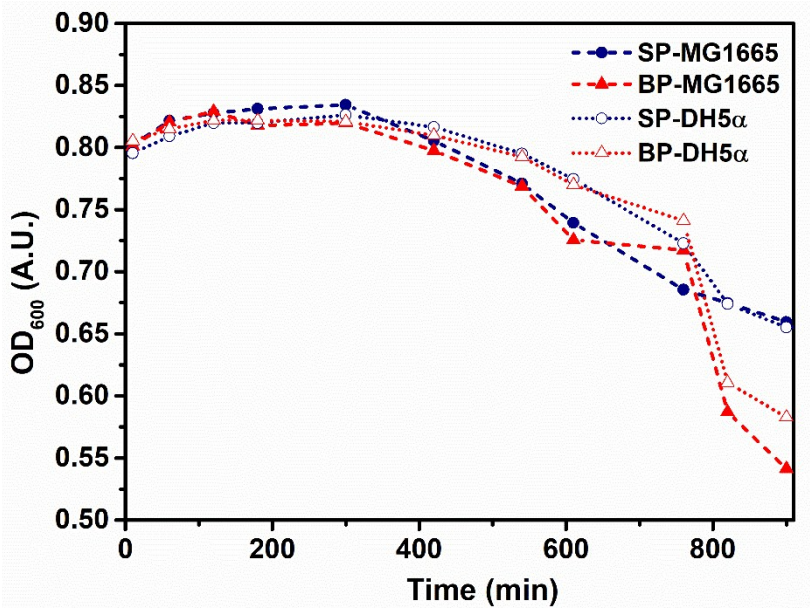

Figure S17 The change of optical density (600nm) for both template (MG1655) and non-template (DH5α) bacteria with time after addition of glycopolymers (SP, BP).

Characterization of Golden nano-particles (GNPs) decorated with polymers

TEM measurements

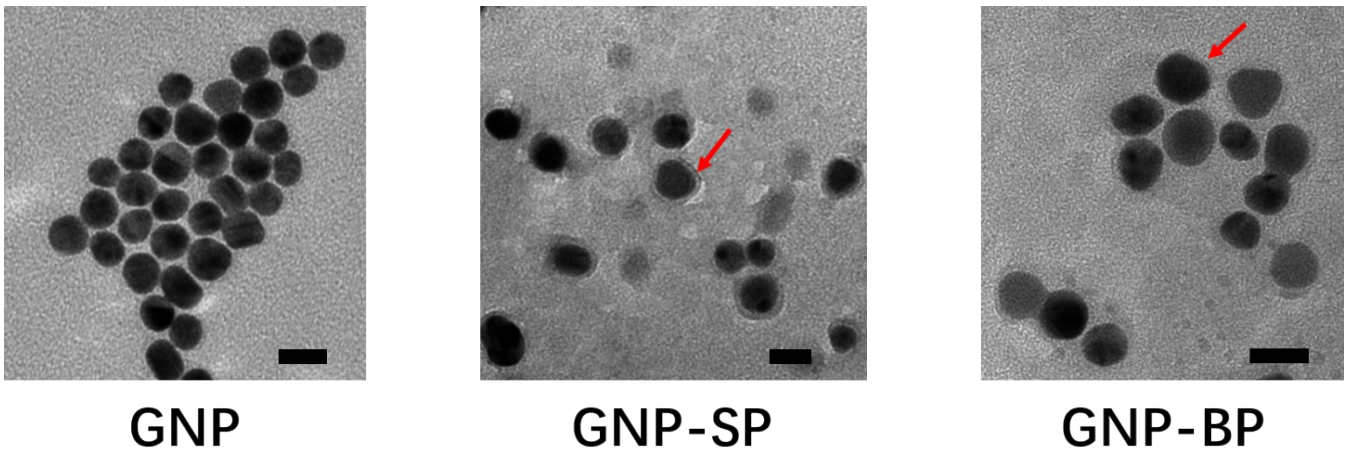

Figure S18 TEM images of GNPs before and after modification with glycopolymers (scale bar =15 nm).

Dynamic Light scattering (DLS) measurements

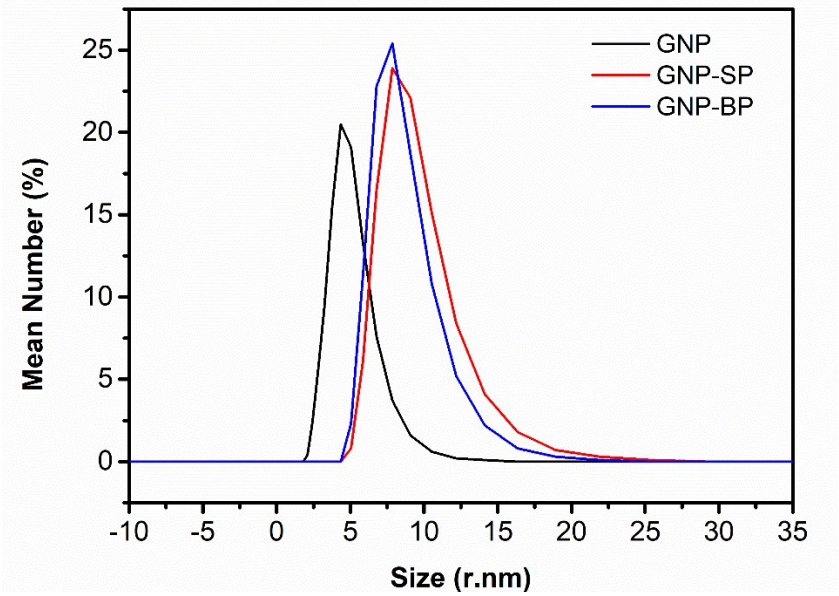

Figure S19 DLS characterization of GNP-SP, GNP-BP and GNP.

Zeta potential measurements

Table S1 The zeta potential of GNP-SP, GNP-BP, and GNP

Samples	GNP	GNP-SP	GNP-BP
Zeta Potential (mV)	-36.2 ± 1.7	-30.6 ± 2.6	-32.2 ± 1.2

Inhibition experiments

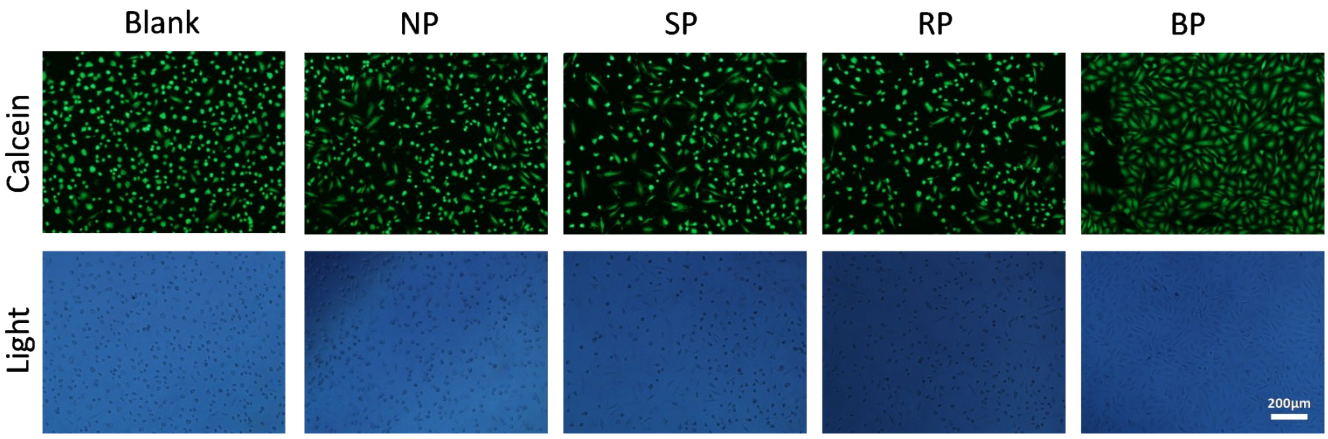

Figure S20 Inhibiting effects of glycopolymers in the anti-infection experiment.