

Supplementary Information

An effective antibiofilm strategy based on bacteriophages armed with silver nanoparticles

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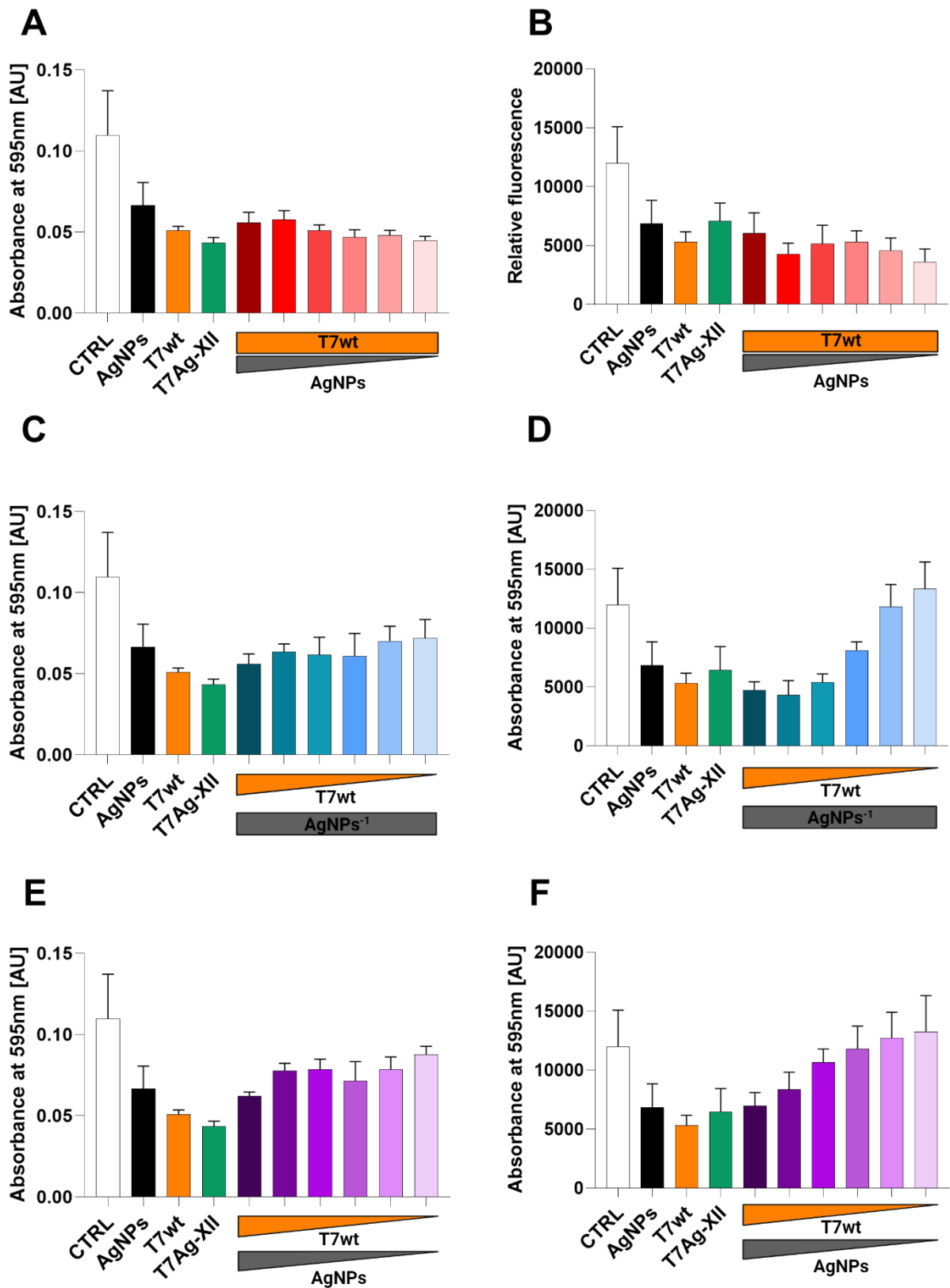


Figure 1S. Assessments of biofilms after treatment with a combination of T7wt phages and AgNPs. *Escherichia coli* biofilms were grown for 24 hours; incubated for 6 hours with

T7wt and T7Ag-XII phages, or a combination of T7wt phages mixed with AgNPs; and subjected to analyses of biofilm biomass and bacterial viability. The working concentration of phages: T7wt and T7Ag-XII were kept at 1×10^9 pfu/mL; the variations in T7wt phage working concentrations decreased by an order of magnitude from left to right as indicated by orange gradients (panels C, D, E and F: from 1×10^9 pfu/mL to 1×10^4 pfu/mL). The working concentration of AgNPs was 1 mg/mL; the variations in AgNP working concentrations decreased by an order of magnitude from left to right as indicated by grey gradients (panels A, B, E and F: from 1 mg/mL to 0.000001 mg/mL). Panels A, C, and E show measurements of biofilm biomass based on crystal violet staining; and B, D, and F show measurements of cell viability based on resazurin staining. Data are shown as mean values of ≥ 3 biological replicates. Statistical analysis (one-way ANOVA) was carried out. There is no significantly higher efficiency of T7wt phages mixed with AgNPs in comparison with AgNPs alone or T7wt alone. Abbreviations: AgNPs, silver nanoparticles; AU, absorbance units; CTRL, biofilm without phages or AgNPs treatment; T7Ag-XII, T7 phages displaying the RFEHPAVPRTEM peptide; T7wt, wild-type T7 phages.

Table S1. Amino acid sequences of AgNP-binding peptides displayed within the pIII protein in M13 phages after three rounds of biopanning.

Clone name	Sequence	pI ^a	MW [Da]
Ag-I	SWNDPFQPQYYS	3.80	1531.60
Ag-XI	LIWGSNMNLLPI	5.52	1370.67
Ag-XII	RFEHPAVPRTEM	6.76	1469.68
Ag-XIV	LPYSARTFFSEA	6.00	1388.54
Ag-XV	SYARVDLPEHIH	5.94	1436.59
Ag-XVII	PGDGTLSTRYNNY	6.26	1356.41
Ag-XVIII	PWQQRPPDYHTD	5.22	1539.63

^aIsoelectric point (pI) and molecular weight (MW) values were calculated using the Compute pI/MW tool available at <https://www.expasy.org/resources/compute-pi-mw>.