Supplementary Data

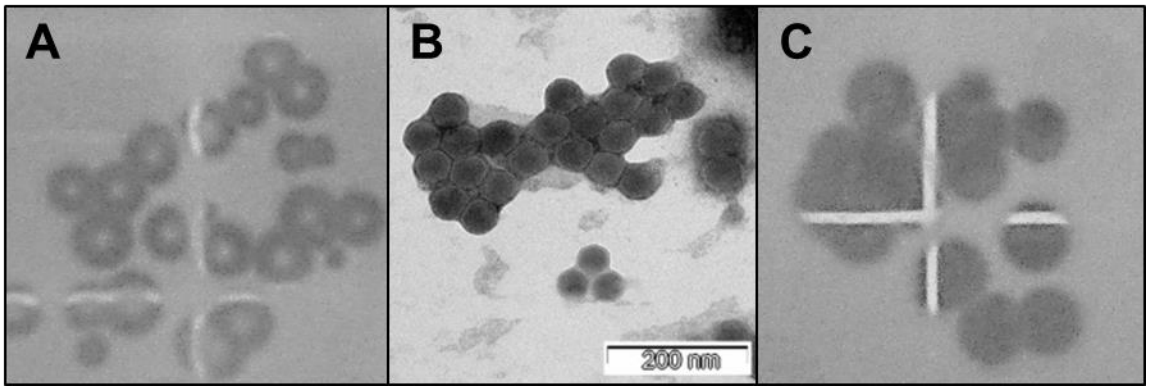

FIG. S1. Morphological characteristics of SPN9CC phage. Bulls-eye shape plaque morphology in dotting assay (A) and TEM morphology (B). (C) Plaque morphology of SPN9CCM phage in dotting assay.

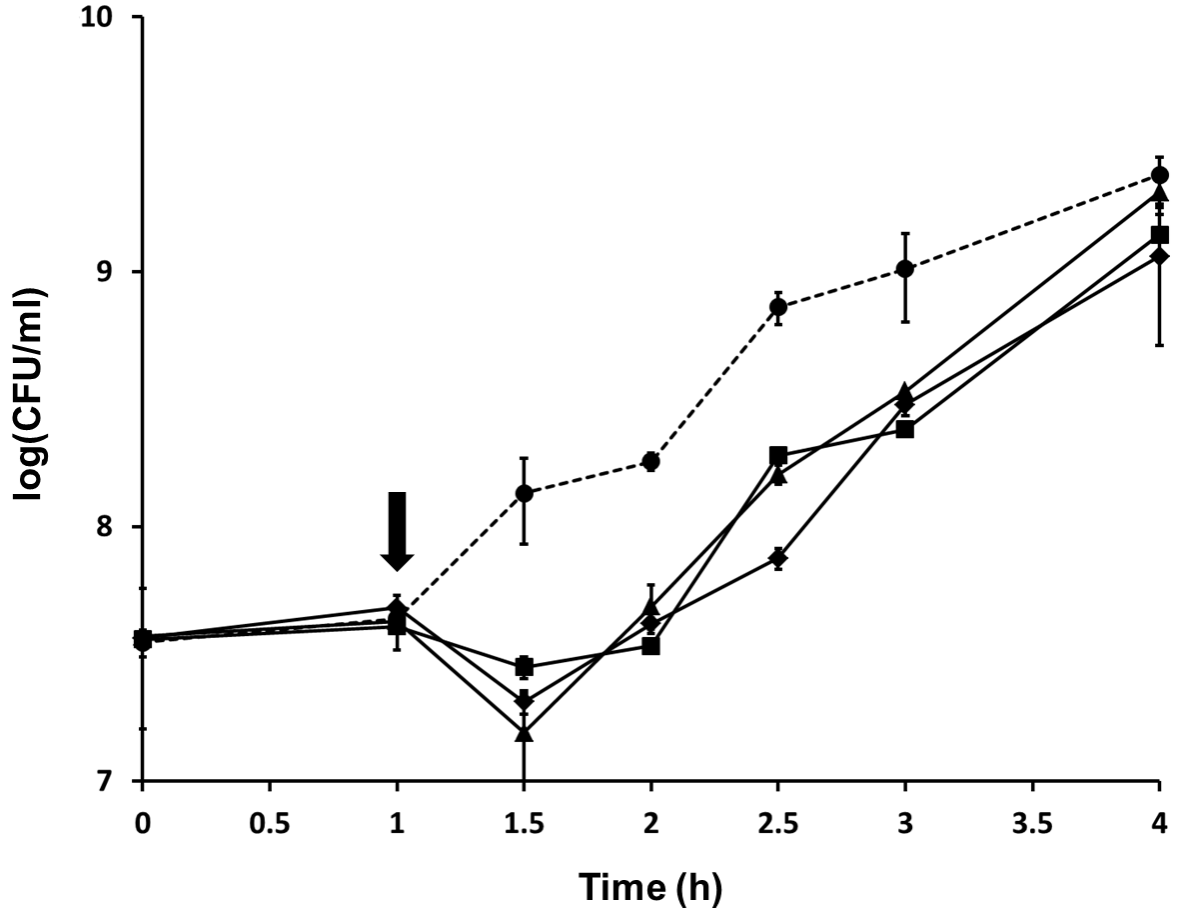

FIG. S2. Bacterial challenge test of SPN9CC phage with *S.* Typhimurium LT2C. The circle, square, triangle, and diamond indicate an SPN9CC-uninfected sample (dotted line) and SPN9CC-infected samples with MOI = 1, 10, and 100, respectively. The phage infection time is indicated with a thick black arrow at the time of 1 h. The error bars indicate the standard deviation in triplicate experiments. Growth curve analysis and subsequent viable cell counting of SPN9CC-sensitive *S.* Typhimurium SL1344 after infection of SPN9CC were performed to determine the bacteriophage-insensitive mutants (BIMs). Thirty minutes after phage infection with different MOIs (namely, 1, 10, and 100), viable cell numbers were reduced by 0.81

log(CFU/ml) average, and they were recovered in an additional 3 h incubation, suggesting the generation of BIMs (Fig. S1). In addition, the BIM frequencies of *S.* Typhimurium SL1344 with different MOIs (1, 10, and 100) were 7.78×10^{-1}, 4.19×10^{-1}, and 5.62×10^{-1}, respectively. These very low viable cell reduction and high BIM frequencies may be due to the formation of lysogen during phage infection. Subsequent induction of infected *S.* Typhimurium cells 30 min after infection supports this conclusion (data not shown). In addition, the viable cell reduction at MOI = 10 was maximum at 30 min after phage infection and not at MOI = 100, suggesting that high MOI promotes lysogen formation, resulting in higher cell viability against phage infection (1, 2)(Fig. S1). Based on this result, the presence of highly concentrated phages in the center of SPN9CC phage plaques may promote lysogen formation, resulting in the formation of unusual clear plaques with cloudy centers.

REFERENCES

1. **Kourilsky P, Knapp A.** 1975. Lysogenization by bacteriophage lambda: III. Multiplicity dependent phenomena occuring upon infection by lambda. Biochimie **56:**1517-1523.
2. **Myron L.** 1957. Mutations in the temperate phage P22 and lysogeny in *Salmonella*. Virology **3:**22-41.