

1 **Characterization and Genomic study of EJP2, a Novel Jumbo Phage Targeting**  
2 **Antimicrobial Resistant *Escherichia coli***

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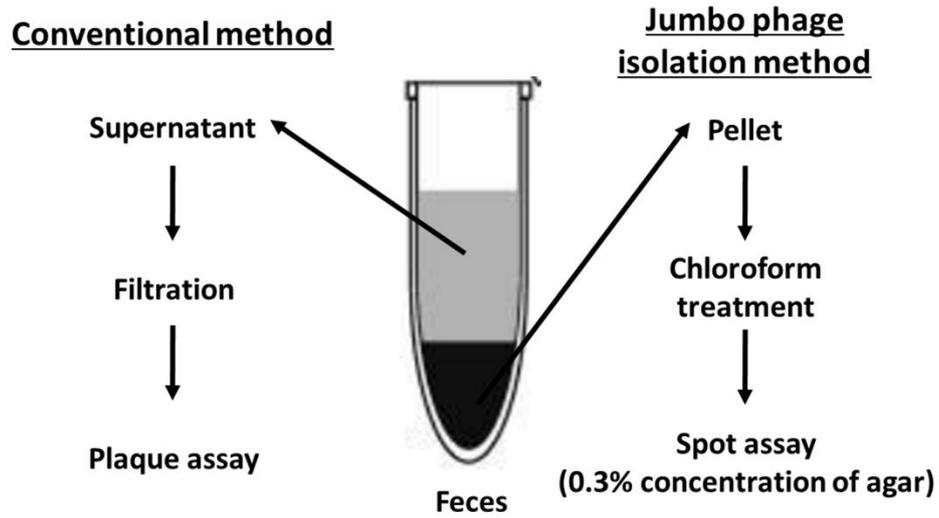
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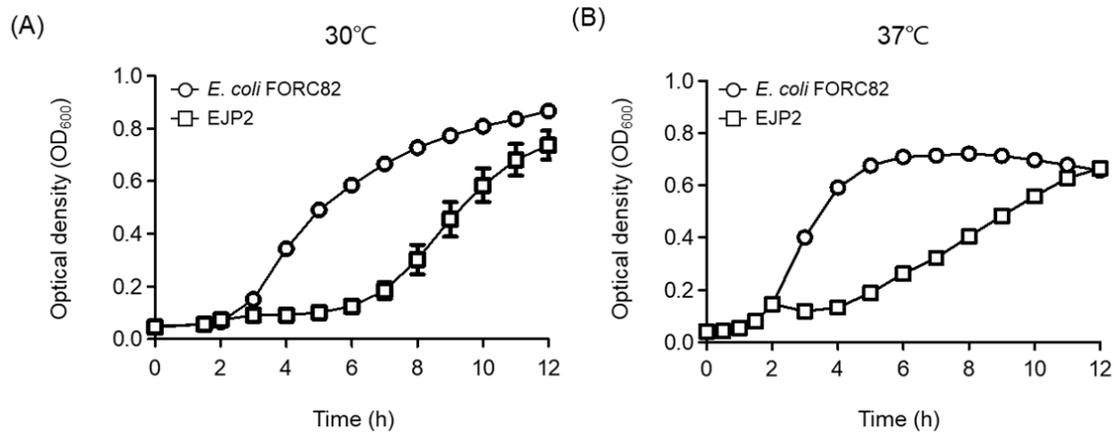
12 Phone: 82-2-880-4856. Fax: 82-2-873-5095. E-mail: [sangryu@snu.ac.kr](mailto:sangryu@snu.ac.kr)

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15 **Figure S1.** Schematic of jumbo phage isolation. As different from conventional methods that  
16 use supernatants from samples with filtration, large particles of feces were separated by  
17 centrifugation and suspended with SM buffer. The resultant lysate was used for spot assay using  
18 low concentration of agar (0.3%). Small plaques were picked and used for further purification.

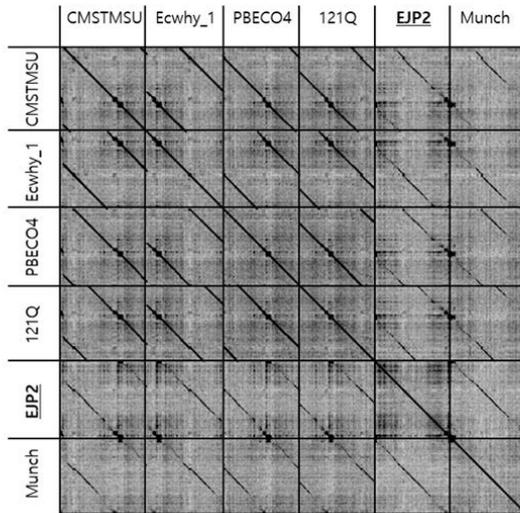


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20 **Figure S2.** Bacterial growth inhibition assay against *E. coli* FORC82. Bacterial cells were  
 21 prepared at 30°C (A), and 37°C (B). EJP2 was inoculated into bacterial culture at a MOI of 1.  
 22 The optical density at 600 nm was measured every 1 h for 12 h. The control group without  
 23 phage (○) and the experimental group with phage EJP2 (□). The data shown are the mean  
 24 values from three independent experiments, and the error bars represent the standard deviations.

(A)

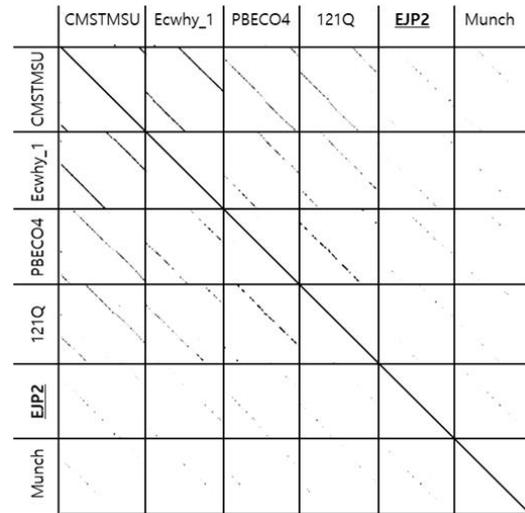
Nucleotide sequence



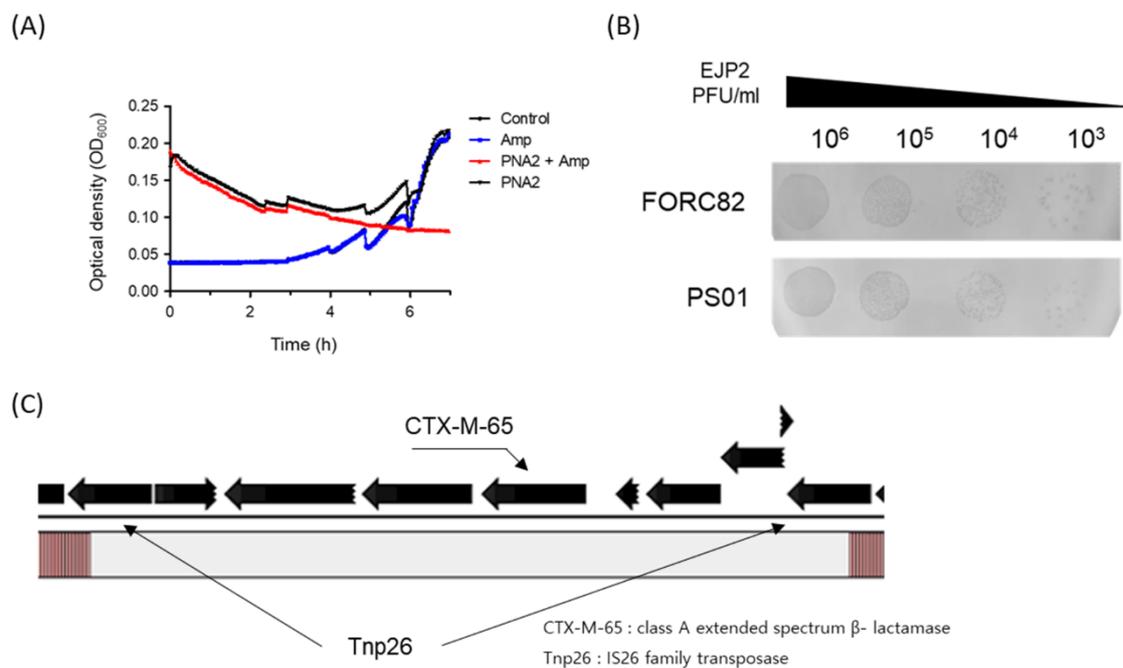
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(B)

Amino acid sequence



26 **Figure S3.** Comparative genomic analysis of EJP2. The overall genomic and proteomic  
27 similarity among EJP2 and other six jumbo phages were identified by dot plot analysis. Dot  
28 plots were generated using Gepard v1.40 based on the nucleotide sequences (A) and the amino  
29 acid sequences (B) of EJP2 and other six jumbo phages. Black lines represent similarities  
30 among phage nucleotide or amino acid sequences.



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32 **Figure S4.** PNA treatment for curing pFORC82\_1. (A) Restoration of sensitivity to AMP by  
 33 PNA2 treatment. (B) Deletion of about 6.3 kb region containing class A extended-spectrum  $\beta$ -  
 34 lactamase (blaCTX-M-65) gene in pFORF82\_1. Red color under the thick black arrows  
 35 indicates matching sequence with reference sequence, and grey color represents deleted  
 36 sequence. CTX-M-65, class A extended-spectrum beta-lactamase; Tnp26, IS26 family  
 37 transposase. (C) Same efficiency of plating (EOP) of *E. coli* FORC82 and *E. coli* PS01 against  
 38 EJP2. The susceptibility of two strains against EJP2 was measured by spot assay.